SEPARATION OF USE OR MISUSE: MULTIFACETED EMPIRICAL STUDY OF ZONING VARIANCES

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DEDICATIONS

I dedicate this product to my daughter, Isabella Rhoads, who gave me inspiration to keep fighting and complete my degree requirements in spite of the turmoil. You will always live in my heart, my mind, and my spirit.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Separation of Use or Misuse: Multifaceted Empirical Study of Zoning Variances

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In Pennsylvania, sprawl, simply known as unplanned suburban development, is consuming land at a rate greater than the population increase. Sprawl continues for several reasons many of which are uninvestigated. The goals of this research are to evaluate the process of zoning variances and zoning boards from 1981 - 2001: the composition of the zoning board, the board's decision-making, and the result of their decision-making on the environment. Zoning boards wield power over special exceptions and zoning variances; unknowingly, variances may be requested before new development begins, thus these variance requests are required for development to continue or even to occur. The process is compared to Molotch's Growth Machine theory which states that localities are in economic competition with other localities, therefore entities and individuals that support those entities (real estate professionals, lawyers, judges and the like) will work towards the economic growth of their area as it benefits themselves in return. As a result of the Growth Machine process, regulations are hardly enforced, specifically when zoning becomes too burdensome on the real estate, zoning is changed and/or variances given. This research investigates this process in eight townships of Chester County, Pennsylvania: Birmingham, East Bradford, East Goshen, Easttown, East Whiteland, Pennsbury, Tredyffrin and Westtown. Research findings show that the Growth Machine is more prevalent in Birmingham, Easttown, Pennsbury, and Tredyffrin. Elements of the Growth Machine include high overall approval ratings of

zoning variances, percentage of variances illegally approved, influence of townships' economics in approval ratings, and significant differences identified among approval ratings for commercial and residential environmental variances. The presence of real-estate professionals and little professional and gender diversity may be elements, but not necessarily deciding factors as well. In addition, zoning variances contribute to increases in impervious surface. This research represents a robust evaluation of the process of zoning board development, decision-making, and the environmental effects of zoning variances, and how zoning variances and boards play an important role in the contribution to sprawling development.

CHAPTER 1: INTRODUCTION

In the United States, suburban development, or sprawl, is consuming land at a rate of more than 340 acres an hour. More farms, forest, natural areas and open space have been developed in the last fifty years than in all previous history (Fodor, 2000). As sprawl has expanded during the second half of the twentieth century, the imagery it conjures has grown progressively more negative. It is now synonymous with a rapacious gobbling of previously open space, a usurping of boundaries, an engulfing of nature and countryside by development including housing subdivisions, shopping centers, office/business parks, civic institutions, and roadways (Duany, Plater-Zyberg, and Speck, 2000, CCPC, 1995: 8).

The Brookings Institution developed a list of ten traits for suburban sprawl in 1998:

1. Unlimited outward expansion;
2. Low-density residential and commercial settlements;
3. Leapfrog development;
4. Fragmentation of powers over land use among many small localities;
5. Dominance of transportation by private automobiles;
6. No centralized planning or control of land use;
7. Widespread strip commercial development;
8. Great fiscal disparities among localities;
9. Segregation of types of land uses in different zones; and
10. Reliance mainly on the trickle-down or filtering process to provide housing to low-income households (Lackey, 1998: 1).

Changing an area from rural to suburban requires forces in the social system as well as political system. These forces in turn affect the natural system. Social forces are one of the most important driving factors behind ecological degradation. Paul Stern (1997: 1897-1899) created a model that develops the human-environment interactions which consists of three categories: social origins of environmental degradation, effects of environmental degradation on human society, and feedback between environmental degradation and human actions. Brulle expands upon Stern's model to define a more specific framework which includes: human origins of environmental degradation, effects of environmental degradation on human society, and human responses to environmental degradation. The social variables that define the beginning of a society's ecological problems are found in the structure of social institutions, cultural beliefs and individual behaviors, and these variables manifest themselves in the society's type of technological practice, its population level and its level of resource consumption (Brulle, 2000).

Problems with explosive and unplanned development partly result from the structure of planning policies and the offices that support them. Zoning is considered one of the principle planning tools for the issues that face suburbia. Zoning first developed as a means for planners to control emerging problems of the city (Haar and Kayden, 1989: 124). Zoning is now supposed to be the means for prevention of further suburban growth based on environmental and land preservation goals, but typically zoning is used to create or maintain exclusionary communities (Haar and Kayden, 1989).

Zoning variances, an important safety procedure in zoning for application in unusual situations where a literal interpretation of the zoning code creates a hardship, have been used as "marketable commodities." Planning codes outline regulations for

zoning board member development such as length of terms and size of boards, but these guidelines are not enforced. A recent survey of planning commissions throughout the US revealed that diversity among boards is most important although a number of townships do not outline strict guidelines for selecting a diverse group (Senville, 2002). No mention was made about zoning boards, but similar needs should apply and do not exist. Diversity is key to understanding all issues of development including health, environment and economics (Senville, 2002).

Despite the prevalence and extent of planning regulations, and a general commitment of citizens and government to steer urban growth in a direction that is both aesthetically pleasing and environmentally sustainable, development continues to accelerate virtually unabated. This acceleration begins with the individuals making these decisions. How do these individuals operate? Are they looking for the economic incentives? Many of these questions are answered by evaluating the decision-making process of an urban place in the framework of the Growth Machine theory. This theory developed by Harvey Molotch in 1976 attributes many of the decision-making in a "local place" to the economic growth incentives either directly or indirectly beneficial to the individual making the decision or to the place. Unfortunately many of the decisions regarding permitted building are being made at a local level – a level not normally investigated.

At this level, township managers, planning commissions, zoning boards and officers and other localized commissions and committees are making decisions. In particular, zoning boards have final adjudication on many matters such as permits for variances, which are not addressed in dealing with sprawl, rather are considered minute

in comparison to building permits. Unknowingly permits for variances are created as a result of new building permits, and in cases development may only occur if these additional permits are approved. Variance approvals also contribute to single lot or small infill projects that result in "impervious creep", defined as the increase in impervious cover seen over time in highly developed areas (CWP, 2001:6).

This research seeks to examine if permits for variances play a role in contributing to sprawling development and if the composition of the zoning board affects the variance decision-making. Therefore to identify the political and social factors that are causing environmental problems, every level of political power must be analyzed, even at the lowest level, to address sprawling development. This local level includes eight townships in Chester County, PA: Birmingham, East Bradford, East Goshen, Easttown, East Whiteland, Pennsbury, Tredyffrin, and Westtown. Tredyffrin and East Whiteland include Valley Creek Watershed which was part of a Drexel University research project funded by National Science Foundation, Environmental Protection Agency, and US Department of Agriculture to investigate the effect of sprawling development on society, policy and the environment.

This research evaluates zoning variances in three ways: 1) the contribution to sprawling development, 2) the environmental effects of approvals, and 3) the impact of the socio-economic composition and zoning board members' background on approval rates. To conduct this research, a detailed evaluation of the following is required: sprawl, its environmental impacts and policies, zoning and its policies, and the Growth Machine which provides the details for the social factors influencing the zoning decisions made at the local level – zoning board composition. Second, types of variances, approval

ratings and legality of approvals are evaluated. Third, the environmental degradation resulting from zoning variances is quantified to provide the human-environment interaction. Lastly, the zoning board member composition and socio-economic composition of the townships are compared to variance approval rates.

CHAPTER 2: BACKGROUND

Zoning is important to the historical development and effects of sprawling growth. Zoning was one of the planning tools implemented to cure the city of nuisances and is now being used to maintain suburban land development. Understanding the history of sprawling development and zoning is required to understand how influential zoning is in sprawl.

Sprawl and Development

History

Suburbs are not a twentieth century innovation. Our social history has been told as a biography of American cities, a narrative of urban places undergoing convulsive changes of technology and population composition (Wirt, Walter, Rabinovitz and Hensler, 1972: 13). Suburban growth has been accelerating over the first seven decades of the twentieth century, and there is no reason to predict that it will soon stop (Wirt, Walter, Rabinovitz and Hensler, 1972: 13). Sprawling suburbia has occurred as a combined result of federal policy initiatives in transportation and housing, the population's preference for open space and less congestion, segregation of whites and other races – white flight, and other political, economic and social conditions that began in World War I and II.

In the 18th and early 19th centuries, village and farm were dominant with two-story detached houses. During the 19th century, development was mostly within the city with row-houses or tall tenements. The first boom of the sprawling suburbs begun as early as the period between 1870 - 1925 with the expanding railroad lines and the need to have agriculture close to the city to supply the daily needs (Wells and Wolfe, 1990, Haar

and Kayden, 1989). The 20th century brought tall fat apartment houses as the pressure for density increased. Along with increasing the height and width of buildings, suburbs started with ranch and split-level houses (Williams, 1966: 61).

The 1920's were the first decade when the Census-takers noticed that the suburbs were growing much faster than the central cities by 39% (Wells and Wolfe, 1990: 276). Some of the first suburbs at this time included Garden City on Long Island and Radburn and Llewellyn Park in New Jersey (Haar and Kayden, 1989: 131).

Suburbanization, a demographic fact, then led to initial concerns by social reformers who recognized the need for metropolitan planning. Such groups as the Regional Planning Association of America were formed, but they did relatively little to shape the new landscape. Formless sprawl along the suburban commuter lines continued to spread, and despite the lack of planning, was praised by the social commentators of the day. Harlan Paul Douglas concluded in *The Suburban Trend* in 1925, that a "crowded world must be either suburban or savage." The middle class of the late 1920's, however, did not need a philosophic justification for their move from the city to suburbia. All they needed was a down payment and reasonable financing terms (Kaplan, 1976:13).

The automobile and new roads played a major role in changing the face of transportation. In 1923, traffic congestion in some cities was so bad that there was talk of barring cars from downtown streets. This began the development of simple underpasses or overpasses on American highways. In the 1930's, the New York master builder, Robert Moses, was already planning a system for car commuters. Eisenhower believed that new roads were vital for national defense in an era of Cold War and also believed that the new roads could generate an economic boom (Wells and Wolfe, 1990: 292).

The second boom in urban sprawl is directly identifiable with the period after World War II. At this time, cities were experiencing a significant shortage of housing and employment for a rising population. Several initiatives by government and industry spurred suburban growth such as the National Housing Act of 1934 which set up the Federal Housing Administration in preparation of the War. The Administration was designed to develop new low-density communities and to facilitate homeownership for non-farm population. To reduce this burden on urban centers, policies were implemented through the Federal Housing Administration and Veterans Administration loan programs, which provided mortgages with easy terms for more than eleven million new homes. These mortgages were directed at single-family suburban construction (Duany, Plater-Zyberg, and Speck, 2000). In addition, while the federal government promoted public housing projects in the cities, suburban municipalities were permitted to avoid them due to lack of infrastructure (Hylton, 1998).

Policies that changed transportation, zoning and housing had a significant impact on land use. Up to the fifties, most FHA-backed purchases were made in the suburbs. This developed because its loan underwriting standards used to evaluate homes rested on criteria which favored single family dwellings, new properties, and notions of neighborhood “viability” (absence of smog and fog, harmoniousness of race and nationality relations) and neighborhood “appeal”. Thus from 1937 to 1967, while the federal government constructed 700,000 public housing units, mostly in central cities, and helped out 235,000 families in multifamily housing units, FHA in contrast issued mortgage guarantees for 9 million suburban homes and allowed some 28 million families

(mostly white families) to secure low-cost home improvement loans (Wirt, Walter, Rabinovitz, and Hensler, 1972: 177).

A name synonymous today with everything good and bad about suburbia, Levittown, was the experiment for mass-production techniques of housing. On December 8, 1951, several thousand people gathered at a real estate sales office in Tullytown to buy a piece of the American dream. Over the next five years, 17,311 houses were built in the community (Worden, 2002: 1). To provide housing for workers in defense plants during World War II, the government encouraged builders – including the builders of Levittown – to experiment with mass-production techniques. William Levitt was "the most potent single modernizing influence in a largely antiquated industry." Levitt and Sons was fast becoming "the General Motors" of housing (Rome, 2001: 16).

The Levitts churned out houses like cars, but built them on an inverted assembly line. Instead of moving the product down the line, the houses went up in place and the workers moved down the line. Opponents, most notably social critic Lewis Mumford, pounced on the Levittown idea almost immediately, predicting the eventual collapse of the offensive suburban experiment. Others believed that Levittowns were turning people into robotic conformists, and that there could not be anything of social value that existed there (Worden, 2002: 1).

The 1956 Federal-Aid Highway Act marked the real beginning of freeway suburbanization. Roosevelt intended for his appointment of the Inter-Regional Highways Committee to cure urban blight, but engineers wanted to create the roads as soon as possible and did not want to take the time to plan the development of the freeway that

would benefit the city. In the end the engineers won and killed the city planner's hope for revitalization of the urban areas (Wells and Wolfe, 1990: 291). Thus, this act initiated the beginnings of highway building contributing to the network of population expansion outside the cities' boundaries.

From then on the gap in growth rates has progressively widened in favor of suburbs. From 1940 to 1950, suburbs grew at twice the annual rate of central cities (Wirt, Walter, Rabinovitz and Hensler, 1972: 18). People continued to move in looking for the American Dream; a house is the most urgent, most valued, and most studied demand of an American family (Rome, 2001: 35).

Public choice focuses on residents' attitudes toward satisfying their preferences for public goods or in other words achieving the "American dream" or "keeping up with the Joneses" (Williams, 1966: 74). Residents elect the municipality that offers them the best services like schooling (Baldassare, 1992: 478). A survey published by *Professional Builder*, a trade magazine in the 1970's, concluded that 92.7% of home shoppers wanted a detached house (Kaplan, 1976: 211). Today, this trend continues. Citizens and taxpayers move to suburbs for open space, inexpensive living, and freedom of individual automobile travel. In addition, people prefer to live in new houses with new infrastructure typically found in the suburbs. A builder, Joseph Duckworth, presented an idea to re-create the suburbs to reduce the consumption of land and to create a traditional neighborhood environment or termed TND (traditional neighborhood development). When presenting this idea, it was shunned by the residents of the Philadelphia suburbs. People leaving the city for the suburbs were leaving for greener pastures (Mastrull, 2001: 2). The "American Dream" of a house and a car out in the suburbs is supreme today.

The homeowner instinct in the United States is a classic desire just like the desire for oversized SUV's or plush all-leather interiors (Lazare, 2001).

This public choice may also be called "white flight". Many white Americans left the city as a result of migration of poor black and Puerto Rican individuals into the city (Williams, 1966: 87). Affluent individuals typically of the white race have the ability to leave the city leaving behind lower income black, Hispanic and minorities. In the new suburbs they have the ability to influence the planning and development of the area to keep this economic and racial polarization. Flight of jobs and white, middle-income families to the suburbs has contributed to and exacerbated both economic and racial polarization in many cities including metro Atlanta's housing and schools. Central city Atlanta has become increasingly black and poor, and the region's middle-income suburbs that encircle the city are largely white (Bullard, Johnson and Torres, 2000: 11).

Once the housing and the people were shifted to the suburbs, businesses and corporations shortly followed the workforce or the CEOs. In addition, land use limitations of the city pushed economic activity out to the suburbs (Haar and Kayden, 1989: 143). The business movement out of the center cities was a combination of lack of local workforce and lack of parking spaces (Duany, Plater-Zyberk and Speck, 2000, Haar and Kayden, 1989).

As a result of all these political, economic and social changes, eight of ten Americans now live in areas defined by the Census Bureau as "metropolitan." Recent population trends also show that people are moving to the fringes of our metropolitan regions. Since 1980, suburban population has grown ten times faster than central-city population in the US largest metro areas (Benfield, Raimi and Chen, 1999: 5). In the past

thirty years, the city of Philadelphia has only undergone a 6% increase in population whereas the surrounding suburban fringe has experienced a 30% increase in population (Metropolitan Philadelphia Policy Center, 2001: 10). The social history no longer weaves a tale of increasing population but of a moving population, one that is leaving the city and moving or sprawling into a "new frontier" with dire environmental effects.

Effects

Sprawl increases the land developed and decreases the amount of open space, but it also has other outlying environmental and social consequences that tend to be overlooked. Sprawl affects 1) insect, plant and animal species, 2) water quality and quantity, 3) human health, and 4) global environmental problems such as global warming (Hylton, 1998:34).

A warning was sounded in 1968 by a President's Task Force on Suburban Problems, which reported that while millions of Americans were moving to the suburbs to find space, quiet, decency, and comfort, once there they were finding something else.

> "In the rush to provide facilities that so many citizens wanted, suburban land has been cut too fine and built up too thick, and what should have been shapely towns have grown formlessly until the suburban sprawl has destroyed the sense of community and sense that the citizens could control their own environment." The report continued: "Blight and decay have begun to set in, as they do in any community that has lost the love of its inhabitants. Industry has been moving in, as it should in order to provide jobs near people's homes, but in the unordered and unprepared fashion, resulting in pollution of the air, water, and landscape" (Kaplan, 1976:17).

Almost 35 years later, it is not the President urging a change in land use but the states. State governments across the country are learning that economic growth is not necessarily good and that haphazard suburban growth can be more harmful to the environment and to government coffers (Lackey, 1998:1). Harms to the environment

include, but definitely are not limited to problems with open space, impervious surface and water quality, energy use and global warming, and social function.

Open Space

In the years after WWII, as the nation's builders turned acre after acre into suburban subdivisions, a large number of Americans became concerned about the transformation of the landscape. To prepare the land for construction, builders often bulldozed all vegetation, leveled all rises, and filled or channeled all streams (Rome, 2001:121).

According to the USDA's Natural Resources Conservation Service (2000), land is being developed at an average rate of nearly 2 million acres per year. *National Geographic* published an article in July 2001 which detailed that seventy million Americans lived in the 13,000 square-miles comprising the nation's urbanized areas in 1950. Today about three times as many people live in a total metropolitan area that is more than fifty times as large. The EPA has called urban sprawl "a bona fide threat to New England's environmental and economic future" where development is consuming over 1,200 acres of new land each week (Gillham, 2002: 83). No aspect of human life has been more harmful to Pennsylvania's environment in recent decades than sprawling development, which has wiped out 80 species (plant and animal) and threatens nearly 30 others (Hylton, 1998: 34)

Impervious Surface and Water Quality

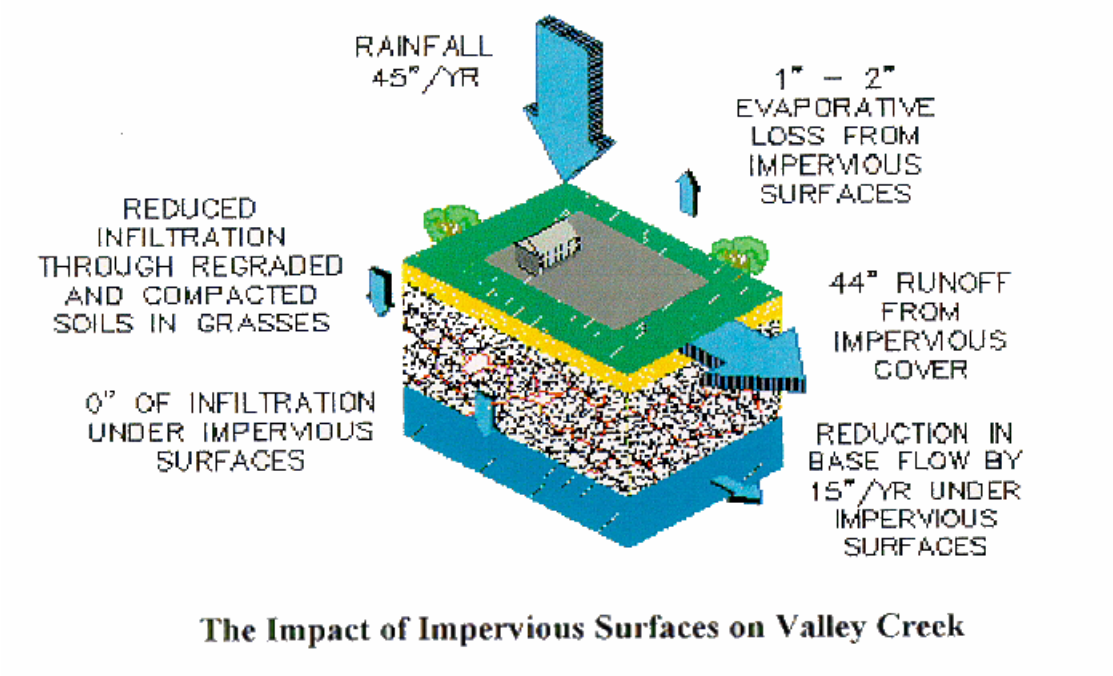
Runoff in suburban areas is caused by impervious surfaces such as roads, parking lots and buildings, but lawns and gardens also contribute. The increase in volume of water is also accompanied by an increase in pollutants. Areas such as lawns and gardens

produce many of the same sediments, pesticides, and fertilizers found in agricultural runoff. Parking lots, roadways and other impervious surfaces contribute to heavy metals, hydrocarbons and VOC's (volatile organic compounds) (Gillham, 2002: 117).

Several studies have showed the significant effects of impervious surface on watersheds. One study demonstrated that an increase in "effective impervious area" (EIA) with direct hydraulic linkage to the channel system significantly altered rainfall runoff response in the basins. Another study by Booth (1991), showed that EIA increases from 6% to 29% due to urban development caused magnification of peak discharges and the creation of new peak runoff events (Wigmosta and Burges, 2001:7).

A major contributor to water pollution is nonpoint source pollution (runoff). Runoff water can carry pollutants coming from widespread surfaces such as agriculture, urbanized areas, logging operations and construction sites. In 1998, urbanized areas ranked third as a major polluter of the nation's rivers and lakes due to runoff and ranked second for the largest source of impairment to US estuaries. According to the EPA, runoff is the nation's largest source of water quality problems and accounts for 40% of US rivers, lakes, and estuaries failure to meet water quality standards (Gillham, 2002: 115).

Watersheds represent a complex ecosystem. The diagram below demonstrates this complexity. Studies have shown that water quality conditions relate to watershed morphological conditions. These studies have shown a correlation between urbanized watersheds and an increase in conductivity, pH, total suspended solids, fecal coliforms and enterococcus ((Wigmosta and Burges, 2001:11).



(Cahill, 2001)

Figure 2.1 Watershed Dynamics

Energy Consumption and Global Warming

According to EIA (1998), residential energy consumption is 20% of total US primary energy consumption and is 34% of total US electricity consumption for 1997 which continues to increase. Of course this energy use has other greater outlying consequences, global warming. Many scientists and policy makers have been focusing on greenhouse gases as it pertains to altering our global climate which has been considered the primary cause in global warming, but a new NASA-funded study looks to the importance of land-use changes as a major factor.

Land surface changes, like urban sprawl, deforestation and reforestation, and agricultural and irrigation practices strongly affect regional surface temperatures, precipitation and larger-scale atmospheric circulation. The study further states that land surface changes in North America, Europe and Southeast Asia, may actually have a greater impact on climate than anthropogenic greenhouse gases (NASA and NSF, 2002: 1).

Social Effects

Despite the varying environmental consequences of sprawl, social consequences also exist. These consequences of sprawl include: 1) concentration of poverty, 2) acceleration of socio-economic decline in cities, towns and older suburbs, 3) increase in stress related to a lifestyle that includes automobile commuting, lower use of transit, bikes and walking, and the list continues (10,000 Friends of Pennsylvania, 2000). Other potential social consequences include an increase in teenage crime, obesity, psychological problems, etc. The 2nd most likely cause of death among teenagers is suicide, which according to sociologists, a likely contributing factor is teen isolation and boredom (Duany, Plater-Zyberk and Speck, 2000: 120).

Several studies have investigated the link between suburban living and expanding waistlines. Studies conducted by the Center for Disease Control (CDC) and several colleges and universities show a significant pattern between where one lives and the higher rate for overweight problems. "I'm 99 percent sure there's a relationship between how communities are designed and people's weight," said Georgia Tech Professor Lawrence Frank, leader of a transportation-related study in Atlanta named Smartraq.

"People who live in lower-density, suburban environments, all else being equal, have a tendency to be slightly heavier" (Spivak and Bavley, 2002: 1).

Additional problems related to overweight individuals include heart problems and increase in cholesterol, which seems to be related to the design of suburbia. The design is built on a car culture where people have to drive to a nearby store either due to lack of sidewalks or long distances to shopping markets. As a result, The Robert Wood Johnson Foundation recommends creating neighborhoods that promote walking. It has awarded grants to 25 communities to design ways that residents can include exercise in their daily lives (Spivak and Bavley, 2002: 3).

Numerous efforts have attempted to mitigate these impacts. Solutions include planning laws and policies, regulation and oversight by planning commissions, zoning boards and township managers, and outside initiatives by regulatory agencies, NGO's (non-governmental organizations), or environmental/activist groups.

Regulations and Solutions

Planning laws and policy are determined for the most part by the states in this nation. The topic of planning was first initiated in the 1920's with the forming of the Regional Planning Association of America, but they did relatively little to shape the new landscape. Therefore, states and counties began to address the planning problem instead of relying on the government. This research focuses on the state of Pennsylvania; therefore most of the following text represents Pennsylvania laws, policies and studies.

Planning Law and Policy

Pennsylvania developed the Municipal Planning Code for Pennsylvania in 1968. The code consists of twelve articles that address several aspects related to planning

policies. It provides the basic guidelines for comprehensive planning, subdivision and land development, planned residential development and traditional neighborhood development, and the structure of the planning agencies. Details are given for the structure of the zoning boards and how they are to regulate their zoning policies, make decisions and address zoning challenges. The code also addresses joint municipal zoning by detailing the structure of a joint municipal zoning board that coincides with intergovernmental cooperative planning and implementation agreements. Specifically, it mandates that municipalities refer all plans for subdivision and land development to the county's planning commission for review prior to municipal action. In addition, the county has jurisdiction to review and make changes to the zoning ordinances, zoning map changes, curative amendments, subdivision ordinances, comprehensive plans, official plans and conditional uses as is seen fit for the specific needs of the county and its municipalities as long as they are within the code of the state. The county planning commission keeps records for the number of subdivision/land development plan reviews and the ACT 247 ordinance and plan reviews on a yearly basis (CCPC, 2000).

Every year, a number of bills are introduced in the Pennsylvania General Assembly directed at land use and planning issues. Most of these bills directly relate to changes within the MPC (PA state website, 2003) such as HB 1855 which calls for MPC amendment providing for zoning for watershed cooperation among adjoining municipalities. This House Bill was not enacted and has not been updated since May 2001.

These amendments can have an impact on local decision-making, but can be modified at the local level dependent upon differing circumstances. Therefore, effects of the amendment may be negligible due to these outlying circumstances in localities.

Federal Agencies

In 1890, the second director of the USGS, John Wesley Powell, first suggested that the federal government organize the western US into watershed units where governing bodies would facilitate an integrated approach to natural resource management. This plan was not integrated at the time, (EPA, 2001: 10) but today, the EPA recommends a "watershed" approach that uses hydrologically defined areas (watersheds) to coordinate the management of water resources. This approach is important, because it considers all activities within a landscape that affect watershed health such as biology, chemistry, economics and sociology. Local priorities are established in the context of national goals and coordinates public and private actions. It also considers local stakeholder input and national and state goals and regulations (EPA, 2001: 10).

The EPA has developed recommendations for use by watershed management groups and individuals which include education and awareness, partnerships and coordination, monitoring and research, planning and prioritization, funding and technical assistance, implementation, and evaluation (EPA, 2001). Varying discourses of the watershed arena have applied strategies as well.

Non-Governmental Organizations

From a sociological perspective, watershed politics can be defined as being the result of the formation of different advocacy coalitions, each with a specific network and

unique belief system, discursive frames. In the United States, four discursive frames were identified at the national level: wildlife management, conservation, preservation and environmental justice (Dispensa, 2002). The discursive frames that are components of the U.S. environmental movements are listed in Table 2.1 which was created by Brulle, 2001.

Fifty national organizations were identified (Dispensa, 2002) and provided below are prime examples under each discursive frame.

1. Trout Unlimited (TU) represents the wildlife management discursive frame. Their mission is to conserve, protect and restore North America's trout and salmon fisheries and their watersheds (Trout Unlimited website, 2002).
2. The Congress for New Urbanism (CNU) is a reaction to sprawl under the conservation frame. A growing movement of architects, planners and developers, the New Urbanism is based on the belief that a return to traditional neighborhood patterns is essential to restoring functional, sustainable communities (CNU website, 2002).
3. The Nature Conservancy has been working with communities, businesses and people to protect more than 92 million acres around the world since 1951. Their mission is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive (Nature Conservancy website, 2002).
4. Surface Transportation Policy Project represents the interest of environmental justice movement. This organization ensures that transportation policy and related public investments help to conserve energy, protect environmental and

> aesthetic quality, strengthen the economy, promote social equity, and make communities more livable (STPP website, 2002).

These mitigation attempts have not been able to deter all development of rural areas to suburban form, since the population continues to grow into these areas and the documented environmental disturbances are increasing. As growth expanded outside the cities' boundaries in the early 1900's, much of this development was viewed by professionals as wasteful and shortsighted. A coalition of professionals and citizens urged the federal government to develop broader and more effective land-use controls to reign in sprawl. As early as the 1920s, land-use controls such as zoning had been implemented to guide urban development and control unchecked growth. These land-use controls have intensified during the past seventy years, as urban growth has progressively accelerated. Thus land-use controls, especially at the local level, have played an important part in determining the extent and nature of development.

The first period of suburban development is associated with the birth of American planning and zoning. Zoning ordinances provided an endless supply of details to regulate all aspects of suburban housing production. The combination of tools such as zoning, subdivision and site plan review had the power of determining who could live where (Haar and Kayden, 1989: 132). Unfortunately, zoning and other related planning tools maintained and defended the new American Dream (134), sprawl.

Table 2.1 U.S. Environmental Movement Discourses

WILDLIFE MANAGEMENT The scientific management of ecosystems can ensure stable populations of wildlife. This wildlife population can be seen as a crop from which excess populations can be sustainably harvested in accordance with the ecological limitations of a given area. This excess wildlife population can be used for human recreation in sport hunting.
CONSERVATION Natural resources should be technically managed from a utilitarian perspective to realize the greatest good for the greatest number of people over the longest period of time.
PRESERVATION Nature is an important component in supporting both the physical and spiritual life of humans. Hence the continued existence of wilderness and wildlife, undisturbed by human action is necessary.
ENVIRONMENTALISM Human health is linked to ecosystem conditions. To maintain a healthy human society, ecologically responsible actions are necessary. These actions can be developed and implemented through the use of natural sciences.
DEEP ECOLOGY The richness and diversity of all life on earth has intrinsic value, and so human life is privileged only to the extent of satisfying vital needs. Maintenance the diversity of life on earth mandates a decrease in human impacts on the natural environment, and substantial increases in the wilderness areas of the globe.
ENVIRONMENTAL JUSTICE Ecological problems occur because of the structure of society and the imperatives this structure creates for the continued exploitation of nature. Hence, the resolution of environmental problems requires fundamental social change.
ECOFEMINISM Ecosystem abuse is rooted in andocentric concepts & institutions. Relations of complementarily rather than superiority between culture/nature, human/nonhuman, and male/female are needed to resolve the conflict between the human and natural worlds.
ECOTHEOLOGY Nature is God's creation, and humanity has a moral obligation to keep and tend the Creation. Hence, natural and unpolluted ecosystems and biodiversity needs to be preserved.

Zoning

Zoning provides for proper use of land over large areas and allows for the local control of development. Zoning laws follow the Euclidean scheme whereby the zoning ordinance is based on a hierarchy of use categories from single family residential uses to heavy industrial uses. The separation of use categories is believed to avoid nuisances or negative impacts among uses (Gold, 1989: 4). The following details the history of zoning, the development of the Euclidean scheme and changes to zoning ordinances.

History

The earliest modern application of the land-use zoning power in the United States was in 1867 in San Francisco to isolate obnoxious land uses such as industrial sites (Toll, 1969: 122). The progress of regulating land use by districts or zones originated from Germany in the 19th century which was prompted by poor physical conditions of city workers (Haar and Kayden, 1989: 102).

In 1909, the First National Conference on City Planning met in Washington, D.C. to exchange views on the problems and prospects of city planning. The 1909 Conference followed the plans of Benjamin Marsh, secretary of the City Commission on Congestion of Population in New York. Marsh was in Europe in 1907 and 1908 and as a result of his travels wrote a book, *Introduction to City Planning*. Marsh suggested policies such as cheap public transportation and acquisition of public urban land, but he assigned zoning with the most crucial role. The zoning system was a central feature of Germany's urban planning which was adopted by America's cities (Toll: 1969: 124).

At this meeting, zoning was assigned a crucial role in this endeavor. By dividing the city into zones or districts, in which "buildings may be a certain number of stories of

feet in height and cover a specified proportion of the site" (Toll, 1969: 122-124), zoning would improve housing conditions by preserving residential areas for all time (136).

In 1916, the New York Zoning Code was enacted, representing America's first "comprehensive" zoning code (Gerckens 1994: 9). The Commission on Building Districts and Restrictions in New York which drafted this ordinance consisted mostly of Fifth Avenue merchants and real estate interests. A phrase within the zoning ordinance emanates the interest of these participants: "pay reasonable regard to the character of buildings in making zoning regulations in order to enhance the value of land and conserve the value of buildings" (Haar and Kayden, 1989: 105).

Zoning was supported by the US Department of Commerce and the Chamber of Commerce in the 1920's and was established as a constitutional use of the police power to regulate private property with stipulation that individual cases be reviewed on constitutional grounds to see whether the mapping was arbitrary (Williams, 1966: 60). All but a handful of states had adopted zoning enabling legislation. The village of Euclid, Ohio adopted its zoning ordinance in 1922. Euclid represents the most memorable zoning case in zoning history and represents the formation of Euclidian zoning (Haar and Kayden, 1989). Zoning in Euclid confined industrial and business development to protect and develop single-family residence on the lakeshore near Euclid Avenue. Ambler Realty Company played a big role in developing acreage immediately adjacent to its 68-acre tract for single-family residential purposes (6). Ambler Realty Company decided to sell this area for industrial development. The Euclid Zoning Ordinance posed a threat to the Realty Company to use its land in this way which brought the challenge to the ordinance to the US District Court. The zoning ordinance was

amended in 1923, but the case was not withdrawn by the Realty Company and ultimately went to the Supreme Court. Euclid won the case which set the precedence for local zoning officials to have a power unlimited in theory (22).

By 1925, the growth of suburbia had become a national trend, and suburbanization was a demographic fact. Social reformers soon became concerned and recognized the need for metropolitan planning. From 1934 into World War II, the federal government's National Planning Board changed to the National Resources Planning Board. This group did relatively little to shape policy, because they lacked enforcement and eventually died in 1943 (Toll, 1969: 275). Therefore, states and counties began to address the planning problem instead of relying on the federal government.

Following World War I, city governments engaged in detailed urban planning which considered zoning, land use, and traffic patterns. Generally, city planning was conducted by several departments or commissions such as those dedicated to urban renewal, housing, and transportation. As the cities expanded, jurisdictional rivalries occurred. Leaders of these newer areas, suburbs, did not know how to address comprehensive planning issues, particularly those related to zoning (Frieden and Morris, 1968).

In the late 1960's, zoning became a novel interest of city and suburban dwellers. It gave citizens unique experience in participating directly in government. With the exception of taxation, no other aspect of suburban local government during post World War II generated intense public interest (Toll, 1969: 294). Zoning generated so much interest that publications appeared in *New York Times, Wall Street Journal, Time, Harper's*, plus more.

With all this interest also came litigation regarding snob zoning. Zoning boards were holding steadfast to low-density suburbs which added to the metropolitan sprawl characteristic of this time. Typically, snob zoning included controls over the size of building lots and floor area of buildings which are useful for controlling population density and masking desires to live in socially or economically homogeneous communities (Toll, 1969: 297). In 1966, Richard Babcock wrote about what he referred to the above as the *Zoning Game*. "To most real estate brokers and promoters, and to some land economists, lawyers and judges, zoning is a means of maximizing the value of property" (116). He further adds that, "The zoning ordinance can achieve this goal by prohibiting the construction of 'nuisances', provided the common-law concept of nuisance is extended to include any use which detracts from the value of other property to a degree significantly greater than it adds to the value of the property on which it is located" (117).

The objective of urban planning has been to improve the quality of life for individuals living in the city (Frieden and Morris, 1968: 9). "Decent, sanitary, and spacious housing is itself one of the salient attributes of the good life, and our effort to accomplish the Congressional objective of a 'decent home and a suitable living environment for every American family' properly remains a high-priority goal to which our profession is dictated (Frieden and Morris, 1968: 11)." As an outcome of this process, virtually all communities in the U.S. have instituted zoning procedures. Some form of zoning is in place in more than 9,000 cities and affects at least 90% of the nation's population. Zoning is a legislative process, and the basic means of land-use control used by local governments in the United States (McMahon, 2001: 1, Chandler

and Dale, 2001: 13). Today, the ultimate goal of zoning is to avoid or minimize disruptive land use patterns involving incompatible land uses (Chandler and Dale, 2001: 13). In addition, many plans seek to control growth to save open space (McMahon, 1997:1).

Modified Zoning Ordinances

Typical Euclidean zoning ordinances have been scrutinized for several reasons stemming from corruption to lack of environmental impact analysis. Five major zoning changes have been implemented throughout municipalities in the United States: 1) incentive zoning, 2) transferable development rights, 3) performance standards, 4) planned unit developments, and 5) mixed-use development (Gold, 1989, Haar and Wolf, 1989). These zoning changes are examples of ways to address the problems with the typical Euclidian zoning ordinances.

Zoning incentives are not new. They began in 1916 with the first comprehensive zoning ordinance in New York. Incentive zoning has also been incorporated into many performance-oriented systems. These incentives include alternative choices and bonuses. Choices allow more flexibility for developers in how they respond to market demands. Bonuses can be a strong incentive and can produce development to meet higher performance standards (Gold, 1989: 34).

Transferable Development Rights allow unused potential capacity to be shifted across lot lines and lots. For instance, unused development rights from landmark sites in New York are permitted to be transferred from the site to lots across the street. "Zoning banks" are recommended where unused rights over buildings are sold to developers to increase their zoned bulk, allowing a burdened landowner to recover his/her losses as

balanced against the development benefits placed on another (Haar and Wolf, 1989: 269).

Performance zoning was originally developed in Bucks County, PA and further developed in Lake County, IL. This approach divides the municipality into fewer and broader area categories representing a long-term planning strategy. Undeveloped areas are designated "undeveloped areas", and final land uses are designated in a "development area" where use intensities can be determined by public transportation, road capacities, and private market forces. Sensitive, hazardous or valuable natural areas are incorporated into resource protection areas to be acquired and preserved (Gold, 1989: 10). Overall, the use of performance standards is accompanied by increases in zoning (Haar and Wolf, 1989: 277).

Planned Unit Development (PUD) is also labeled density or cluster concept. It is a self-contained community with the rule of density controlling the relation of private dwellings to open space, the relation of homes to commercial establishments, and quasi-commercial uses. PUD provides flexibility, creativity, and variety which is often lacking in conventional zoning (Haar and Wolf, 1989: 282).

Mixed-use development has been described as a relatively large-scale real estate project characterized by significant revenue-producing uses such as retail, office, residential, hotel/motel and recreation, significant functional and physical integration of project components including uninterrupted pedestrian connections, and development conforming to a coherent plan (Haar and Wolf, 1989: 283). Mixed-use development was applied in Tredyffrin Township, PA. The development was named Chesterbrook that contained homes, recreational areas, shopping centers and business parks. The goal was to provide the living, shopping, playing and working areas all within this development, so

there would be no need to venture out of the area.

These procedures are applied across the United States, but what would apparently be the best type of zoning practice is not used due to the local control of state, county or township.

Pennsylvania Zoning History

All state zoning legislation is based on a Standard Zoning Enabling Act proposed by the US Department of Commerce in the mid-1920's. This Act provides a common statutory basis for zoning that makes court decisions on zoning applicable nationwide and authorizes municipalities to designate zoning districts in which only compatible uses are allowed and incompatible uses are excluded. The zoning ordinance establishes a land use hierarchy, like a pyramid, with residential districts at the top of land use (Mandelker, 1997: 108). California, New Jersey and Pennsylvania are among the states that have enacted comprehensive revisions of their zoning legislation that modify the Standard Act (Craig, 1965).

Zoning was first included in the state of Pennsylvania in 1923 within the Borough Code which has been slightly amended over the years. This code requires that in order to establish zoning, council needs to first appoint a zoning commission of three to five citizens (Craig, 1965: 30). All documents produced by the commission are public records and must be filed in the office of the board (32). The Borough Code was replaced with the Municipal Planning Code for Pennsylvania of 1968 (Act 247) with modifications and specific guidelines at the local municipal level.

Zoning Laws

Zoning laws consist of the following major sections: comprehensive plan, official map, subdivision ordinance and zoning ordinance map and text. The comprehensive plan provides the public policy basis for drawing and applying the zoning districts. The official map is the legal device to implement the part of the comprehensive plan dealing with future highways and streets. The subdivision ordinance, closely linked with zoning, regulates the division of land into building lots for the purpose of sale, development or lease. The zoning ordinance consists of a map and text. The map shows how the community is divided into different zones or use districts, which commonly consist of residential, commercial, industrial and agricultural, and rely on street or property lines as district boundaries. The zoning text explains the zoning rules that apply in each zoning district, and sets forth a series of procedures for administering and applying the zoning ordinance (Chandler and Dale, 2001: 14 – 15). Zoning ordinances also contain site development regulations for each zoning district that include minimum front, rear and side yard requirements, height limitations, setbacks and other site development requirements that control density indirectly (Mandelker, 1997: 137).

Zoning regulations do not control all types of development. Certain development projects are exempt from local zoning codes such as federal and state projects, foreign governments, multi-community public districts, local government operations and certain public utilities, although they often conform to be polite. In addition, other types of structures such as churches or existing non-conforming uses may be exempt as well. Zoning controls over areas such as tidelands and waterfront areas are not clearly

indicated as being within their control (Williams, 1966: 53).

American zoning regulations were primarily for new development and permitted existing establishments to continue under certain restrictions such as conforming to regulations for new construction. Problems often left to the courts include: permitted changes between different non-conforming uses, the amount of permitted extension or enlargement, compulsory termination related to abandonment for a given period or of accidental destruction, and compulsory termination after a period of amortization (Williams, 1966: 232 – 233).

Procedural rules provide guidance for making zoning decisions. Two main sets of rules must be followed before reaching a zoning decision: 1) the process of zoning and 2) the zoning question. First, the process of zoning deals with issues such as – was the application filed in time, was public notice given, was there a hearing, etc. Second, the decision maker must look at the type of zoning question which can be classified as four different issues: 1) a change in the zoning map; 2) a change in the zoning text; 3) a variance to the zoning text; and 4) whether the proposed structure or land use meets the minimum standards of the zoning ordinance (Toner, et al, 1994: 65).

Changes in the zoning map or text are called amendments and should be considered using a checklist against the public interest (Toner, et al, 1994: 65). Special exceptions are provided when a building or site was zoned for a particular use and the user then requests a change in use and is able to demonstrate that the new use would not be detrimental and/or a nuisance to the health and welfare of surrounding individuals. These exceptions are important to note, because in practice and in court decisions, the distinction between special exceptions and variances is confused (Mandelker, 1997: 111).

Variances

All elements of zoning are important, but the most vital to understanding the principles and to making zoning work is the variance function. It is the key to whether a carefully formulated ordinance will be meaningful or not (Smith, 1983: 111).

Variances (or sometime referred to as minor exception to the zoning rule) (Toner, et al, 1994: 71) are an important safety procedure in zoning, intended to apply only in unusual situations where a literal interpretation of the zoning code creates a hardship. This "hardship" is interpreted by the Zoning Board or in some localities Board of Appeals or Planning Commission (Williams, 1966: 158), and if a vast majority of variance requests are being granted, it is likely that either the zoning board is not requiring the necessary proof according to the zoning regulations or that the regulations themselves need to be amended (Chandler and Dale, 2001: 18). Variances apply to existing development and new development when the zoning codes interfere with the process and approval is needed by the zoning board to continue with the project.

The zoning board hears requests for variances where it is believed that the provisions of the zoning ordinance inflict unnecessary hardship upon the applicant. The board may approve the application and may require preliminary application to the zoning officer. The board may grant a variance provided that specified findings are made relevant to the case (Pennsylvania Municipal Planning Code, 2000: 78) and the zoning ordinance (Toner, et al, 1994: 71). These documents provide the process that must be used in treating variances and the standards that must be used in evaluating variances.

The standards for evaluating variances often leave room for interpretation. The question becomes how close is the variance application to meeting the zoning standards?

The overriding principle to granting variances is that it only requires minor changes to the zoning standards. Other common considerations include: 1) unique – the hardship caused by zoning standards is unique to the property and is not shared by neighbors and other similar properties; 2) effect – the effect of the zoning standards is to deny a property owner reasonable use of the property; 3) self-imposed – the applicant did not bring the burden upon herself or himself through some action, but instead had the burden imposed upon them; and 4) consequence – the variance should not cause any land use or parcel of land to become nonconforming, or should it be used to allow a nonconforming land use or parcel to continue (Toner, et al, 1994: 72).

In addition to these considerations, applicants must show the following (see Appendix D for additional details):

1. The variance would comply with the public purpose statement or intent for the zoning ordinance in general and the zoning district specifically.
2. The variance will not harm nearby properties nor people associated with those properties.
3. The variance will not change the character of the nearby area.
4. The variance is the minimum necessary to permit reasonable use of the property (Toner, et al, 1994: 72).

In addition to all these conditions, court hearings may set a precedence that can be applied in individual cases. All these conditions considered, granting a variance is a complicated process. For instance in *Hertzberg v. Pittsburg ZBA*, 721 A.2d 43 (PA 1998), the Supreme Court stated as follows:

> "When seeking a dimensional variance with a permitted use, the owner is only asking for a reasonable adjustment of the zoning regulations in order to utilize the

> property in a manner consistent with the applicable regulations. Thus, the grant of a dimensional variance is of lesser moment than the grant of a use variance…" "We now hold that in determining whether unnecessary hardship has been established, the court should examine whether the variance sought is use or dimensional. To justify the grant of a dimensional variance, the court may consider multiple factors, including the economic detriment to the applicant if the variance is denied, the financial hardship created by any work necessary to bring the building into strict compliance with the zoning requirements and the characteristics of the surrounding neighborhood" (East Whiteland Zoning Minutes, 2001).

After all the hearings and review of material, a prepared detailed report on the testimony and conclusions is created for documentation. The following are essential elements of the report: 1) all documents and exhibits; 2) list of all standards in the zoning ordinance with the facts and relevant testimony related to each of the standards; 3) evidence for each of the standards and a conclusion by virtue of the weight of the evidence for each standard; and 4) findings of fact, principal conclusion plus any conditions (if applicable) (Toner, et al, 1994: 73).

Zoning Board Regulations and Procedures in Study Areas

Zoning agencies "exercise considerable control over the land development process." The Standard Act gives administrative power to the zoning board for three tasks: 1) hearing appeals from interpretations of the zoning ordinance; 2) deciding special exceptions to the terms of the ordinance, and 3) authorizing variances form the zoning ordinance (Mandelker, 1997: 108).

The study area of choice includes the southeastern townships of Chester County, Pennsylvania. The township zoning policies are governed by the Municipal Planning Code for Pennsylvania (PA MPC) which provides specific details for the creation and maintenance of the zoning hearing boards. They state that the membership of the board should consist of either three or five residents of the municipality, appointed by

resolution by the governing body. The three-member board should be in office for three years with one member's term expiring each year. If the board consists of five members, the term of office will be five years, with one member's term expiring each year. Alternates for the board may not hold any other office in the municipality, including planning commissioner or zoning officer. The board elects its officers from its own membership; these individuals will serve annual terms and may succeed themselves (Pennsylvania Municipal Planning Code, 2000: 73 - 74).

The zoning hearing board has exclusive jurisdiction to hear and render final adjudications in certain matters as found in detail in the PA MPC. These matters include applications for variances from the terms of the zoning ordinance and flood hazard ordinance or other provisions within a land-use ordinance (Pennsylvania Municipal Planning Code, 2000: 77).

Decisions made by the zoning board may be appealed and heard before judicial review. The courts then have the power to review and reverse decisions for constitutional validity, their authorization under the enabling acts, and on matters of statutory interpretation and fair procedure (Williams, 1966: 55). Major judicial decisions have been concerned with the constitutionality of various devices which may include whether districts were properly mapped or whether a variance or special permit should be granted for a specific location (259).

To review the history of zoning, anyone would conclude that its basic purpose is to protect private property and that protection contributes to the public good. It may also be possible to find a connection between the separation of land uses and public health, and in some cases the need for separation of various land uses related to occupational

hazards (Haar and Kayden, 1989: 131). On the other hand, a number of critics conclude that zoning is tainted with corruption and deceit. The process may contribute to better public health by avoiding conjoining land uses of residential and industrial, but it also contributes to increasing individual and municipality wealth.

Criticisms

Smith (1983) writes, "The greatest single cause for the failure of zoning to effectively guide land-use development so as to result in the betterment of our urban form has been the misuse of the variance technique – sometimes mistakenly or through ignorance and sometime through purposeful and willful intent." According to Richard Babcock (1966), a Chicago attorney, about 95% of all zoning variances granted in the United States are illegal (109). Planning and zoning have been charged with being vague and unpredictable systems often involving secret meetings and decision makers who have hidden conflicts of interest. More specifically, applications for zoning variances or exceptions, unless neighborhood opposition arises, often lead to incremental and irrational policy changes (Gardiner and Lyman, 1978: 18). Unfortunately, these comments written about fifteen to twenty years ago have existed for over seventy years.

Zoning has not always lived up to its promise. In some places, zoning has historically been used to give landowners and developers exactly what they want, regardless of the cost to the community or the impact on the adjacent landowners. As early as the 1930's, questions were being raised about the large number of zoning variances being granted in a number of cities, and city councils and boards of adjustments were accused of destroying zoning maps and breaking down the integrity of zoning districts (Toll, 1969: 281).

Zoning "is often without integrity, responding primarily to entrepreneurial pressures" (Logan and Molotch 1987: 158). Since localities depend upon the property tax for the bulk of their financing, they constantly compete for industrial, commercial, and high-income residential developments, and would offer developers zoning and tax concessions (Popper, 1981: 52-53). Although several scholars maintain that the zoning process is mired in corruption, much of the evidence is anecdotal (Haar and Kayden, 1989: X). In the 1930's, zoning variances were being used as "marketable commodities". In the 1960's the executive directors of the American Society of Planning Officials stated that, "You can buy with money any kind of zoning you want in half the communities of the United States." Altogether, bribery scandals have been common in the history of zoning (Haar and Kayden, 1989: 83).

William Whyte, writer of *The Organization Man*, had a deep passion for open-space preservation which came from personal experience. He had grown up in Chester County, PA about 20 miles from Philadelphia. In the rolling countryside of the Brandywine Valley – a place he considered the most beautiful in America – and every time he visited his family in the early 1950's he saw more signs of sprawl. The need for action was too urgent, Whyte argued, to wait for perfect planning solutions which zoning was not one. Though zoning had a role in preserving open space, zoning decisions were too easy to overturn. More important, the use of regulation to enforce open-space preservation was unfair and probably unconstitutional (Rome, 2001: 128).

Babcock's (1966) formula for insuring controls which serve the general welfare of individuals was to create legislative standards operated by a centralized administrative agency to review zoning decisions. He believed the administrative agency should be the

state government (170). Since this recommendation was put forth, most of the problems with zoning have remained the same, if not heightened with increasing population growth.

In 1968, the National Commission on Urban Problems studied the problems of zoning and land-use regulation to make recommendations to the President, Congress, and Secretary of Housing and Urban Development. In their study they identified land-use controls that served to segregate minorities, that were under the jurisdiction of uncoordinated political units and that used land to serve revenue needs of the community; they also found zoning laws that exerted less land-use control than sewer and water extensions (American Society of Planning Officials, 1968: III).

One indicator for the frequency of corruption is newspaper reports of corruption cases. In 1977, a survey was conducted of newspapers over the period 1970-1976, and of the 372 cases identified, eighty-three corruption cases dealt with land use- the approval of subdivision plans, zoning variances, building permits and so on (Gardiner and Lyman, 1978: 8). In addition, large payoffs occurred to secure approval of zoning changes or subdivision plans with payoffs totaling $50,000 to $100,000 on major developments (9).

The National Institute of Law Enforcement and Criminal Justice provided support to SRI (Stanford Research Institute) International to conduct a two year study of problems of local-government corruption in land-use and building regulation. They had found that such corruption is a significant problem in many areas in the United States (Getzels and Thurow, 1979: vii).

Residential controls, in this view, reflect the elitist objectives of higher-income residents and their interest in seeking to protect their lifestyle and home equity and to

reduce public service burdens by restricting the housing supply. Frieden (1979) argues that affluent and middle-class households have become skilled in camouflaging their exclusionary tactics under the green canopy of environmental regulation (Nieman and Fernandez, 2000: 4).

Much of the dispute or challenges to zoning included: 1) low-income and minority apartment buildings, 2) environmental quality and non-growth issues, and 3) community attempts to restrict expansion by big developers. Each of these problems has involved zoning and land use ordinances with different sets of parties: civil rights movements challenge to exclusionary zoning; civil rights and environmental groups restrictions for no-growth; and homeowners conflict over large-scale development projects (Haar and Kayden, 1989).

On paper, city plans often have strong land-conservation goals, but these goals are interpretive and not binding (Popper, 1981: 51). In an effort to determine if land-use regulations have curbed growth, Warner and Molotch (2000: 52) studied several areas in California from 1970 to 1990. Despite the existence of land-use controls, they found little evidence that such laws and policies had much of an effect on the supply of new housing.

Calavita and Caves (1994) pointed out that in the development process local officials can affect policy outcomes through their continuous involvement in the structuring of the routine local agenda; through appearances at public hearings; through drafting of local ordinances; through recommendations for changes, amendments, and variances; and through their implementation of local policy (Nieman and Fernandez, 2000: 3).

Principally, zoning variances should not be granted automatically each time one is requested; the process should be used sparingly. The applicant must clearly show that, due to unique circumstances, literal enforcement of the ordinance would deny the opportunity to use the land in the same way others in that zoning district use their land. Yet in many cases, boards will grant special privileges to applicants, because it is believed that it is easier to deal with individual problems than it is to say no and preserve the integrity of a zoning ordinance (Mandelker, 1997, Smith, 1983: 114). This problem, among others, is represented below with the latest scandals, corruption and problems with the zoning variance process:

British Columbia – October 29, 2001

> "Edward Levi Scott said the five-member board violated state law by letting his request for a variance to build three houses on two lots die for lack of a second at a meeting last month. The law requires the board to either reject or approve such a request when it is presented properly, the lawsuit said.
> Scott also said the board - of which he is a member - doesn't understand the basics of how it's supposed to function. More than 20 neighborhood residents signed a petition against the project. City Council member Dan Coffey, who opposes Scott's variance, said the homes would be too close together and would hurt property values in the neighborhood" (BC Cycle, 2001).

Birmingham Township, Pennsylvania – July 9, 2002

> "Birmingham Township has among the highest property values in the Philadelphia region, and it didn't get that way, township leaders say pointedly, by being aesthetically lax.
> No fence can be more than four feet high or made, in part or in whole, of a synthetic material; paving stones require a permit, a fee, and an approval process; and in certain cases, so does mulch. And if you want a swing set for your children, brace for a possible multiyear fight, and thousands of dollars in lawyers' fees" (Wallace-Wells, 2002: 1).

Austin, Texas – June 26, 2002

> "Despite an emotional 11th-hour outcry of opposition, Village of Bee Cave leaders on Tuesday approved the first part of a developer's plan to build a $250 million upscale mall in their semi rural town west of Austin. The zoning variance

> approval capped six months of negotiations between the village council and developer Christopher Milam over the size of his planned regional mall.
> More than a dozen people voiced concerns about potential environmental damage, additional traffic, noise and other issues in a 90-minute hearing before the vote" (Novak, 2002: 1).

Miami, Florida – April 30, 2002

> "The state Commission on Ethics has found that Hollywood lawyer David Mankuta engaged in a conflict of interest and broke Florida law by voting to approve a zoning variance for one of his law firm's clients while serving as chairman of Hollywood's Board of Adjustment and Appeals.
> The Ethics Commission found last month that Mankuta broke three Florida laws by voting on a variance in 1996 from which his law firm's client stood to profit and by failing to disclose his conflict of interest. Mankuta, who no longer sits on the board, admitted the violations and agreed to pay a fine of $3,000" (Kay and Meyer, 2002: 1)

In many cases, appointments to boards are made as political patronage. Elected officials of a political party feel obligated to appoint other members of the same political party, regardless of qualifications (Smith, 1983: 93). Diversity is key to understanding all issues of development including health, environment and economics (Senville, 2002).

Zoning and land use regulation issues have a long history of struggle in US society over conflicting land use interests of "exchange value" versus "use value" (Haar and Kayden, 1989:73). The political economic system has unrestrained growth at its core whereby "exchange value" is often the dominant value in land-use decisions under capitalism (Haar and Kayden, 1989, Molotch, 1976). This political economic system is explained by Molotch's Growth Machine theory.

Growth Machine

The social sciences particularly urban sociology has many theories or had many paradigm shifts about land use interests. First, Robert Park and Ernest Burgess crafted an ecological framework for viewing urban life in the 1920's and 1930's. They were the

first in urban sociology in the United States (Haar and Kayden, 1989: 74). Then in the 1950's, ecologists began to dominate urban sociology, and Amos Hawley focused on how population organizes itself in adapting to a changing environment. These ecologists frequently viewed the functional complexity of cities as determined by transportation and communication technologies (75).

The 1970's and 1980's brought a new paradigm shift with the work of European social scientists. Gottdiener (1985), followed the lead of Henri Lefebvre, arguing that spatial production is the material manifestation of complex political and economic processes integrated with the phases of capital development (Haar and Kayden, 1989: 77). Others focused on the role of government in modern capitalism which included the work of James O'Connor (1973) and Jurgen Habermas (1973) (78).

A number of theoretical and empirical models have been constructed regarding the nature of the driving social forces that use the above differing frameworks and influence the creation of sprawling development. These include transportation policies (Wells and Wolfe, 1990: 291); government economic policies (Baldassare, 1992: 477); and, most relevant to the effectiveness of zoning, the "Growth Machine" (Molotch 1976).

The Growth Machine was first introduced in 1976 by Harvey Molotch to explain the political origins of the geographic distribution of urban areas. He sought to link urban development and land-use patterns to the extent and distribution of local community power. To develop this model, he focused on the political processes by which land-use policies were decided. He argued that at its core, "the political and economic essence of virtually any given locality, in the present American context, is growth." He further argues that "the desire for growth provides the key operative motivation toward

consensus for members of politically mobilized elites" (Molotch 1976: 310). Thus economic growth defines the key purpose of local governments. All other functions are seen as secondary or symbolic (Molotch 1976: 313).

Since the expansion or contraction of the economy only creates so many new development projects and jobs, the process of urban growth is not driven by a desire to create new business opportunities. Rather, it is about the distribution of these opportunities between localities. Molotch (1976: 311) argues that "each unit of a community strives, at the expense of the others, to enhance the land-use potential of the parcels with which it is associated." Local elites can use community governments to affect this distribution of development processes, and thus enhance their economic gain. This defines the city as a "Growth Machine." Specifically, he maintains that: "For those who count, the city is a Growth Machine, one that can increase aggregate rents and trap related wealth for those in the right position to benefit" (Logan and Molotch 1987: 50).

This perspective creates an economic incentive for economic elites or their representatives to participate in and capture the local land-use decision making process (Molotch 1976:314). From this perspective, then, land-based elites work together in driving urban politics to expand the local economy and accumulate wealth (Jonas and Wilson 1999: 3). "The people who participate with their energies, and particularly their fortunes, in local affairs are the sort of persons who-at least in vast disproportion to their representation in the population – have the most to gain or lose in land-use decisions" (Molotch, 1976: 314). Molotch points out the local businessmen, particularly property owners and investors, lawyers, syndicators and realtors in the Growth Machine process (314). Places are part of a political economy: cities, regions and states do not compete to

meet human needs, but rather to maximize the investment returns of the political elite (Logan and Molotch 1987: 42).

As mentioned, regional planning and land-use zoning should be a means to constrain sprawling development. However, from the perspective of the Growth Machine, such efforts fail to address the significant and disproportionate power exercised at the local level, and thus have little ability to control growth. Rather, "far from guiding the expansion of the metropolis, [zoning] merely sanctioned the preferences of private enterprise" (Logan and Molotch, 1987: 156). In general, if zoning places too large a burden on development such that real estate is valued much below market prices, ordinances have been quickly changed and/or variances given (Logan and Molotch, 1987: 157). Thus from the perspective of the Growth Machine, "Zoning restrictions provide for `symbolic rituals' in a `zoning game' that inconveniences, but typically does not thwart, the entrepreneurs willing to invest time and money in the local political process" (Logan and Molotch 1987: 157).

To realize this political influence, local elites or professionals such as lawyers, architects, accountants, civil engineers and others who specialize in real estate development, provide backing to politicians who in turn represent these interests in the local government. This process of the creation and maintenance of local Growth Machines explains the inconsistent enforcement of zoning laws in the United States over the years (Warner and Molotch, 2000: 10). However, there are no existing studies to verify the theoretical arguments of the Growth Machine hypothesis, nor detailed studies of the zoning process by which we may determine the applicability of the Growth Machine to local zoning decisions.

The Growth Machine hypothesis has sustained many years of criticism, and it is still being used by many scholars to understand the political economy of place. As a result of the many years of sustained recognition and use, researchers within political economy critically analyzed the hypothesis and identified the following flaws in the process: 1) lack of documented impact of Growth Machines on urban development; 2) accounting of feminist movement and power relations influence on urban and land use dynamics; and 3) the geographic applicability of the Growth Machine.

Criticisms

Logan, Whaley and Crower (1999) attest to the importance of the Growth Machine theory as it was developed in 1976 for providing a model to understand the growth processes in a region, but was untested at the time. They question the influence of pro-growth coalition in North American cities and the impact that Growth Machines and corresponding local policies have on urban development (75).

A departure from the Growth Machine model stems from those who have examined what appear to be very different regimes, cities where the push for growth is tempered by concerns about its negative impacts. The regime types start at one end with the pro-growth regime and ends with exclusionary regime that are dominated by residential interests (Logan, Whaley and Crower, 1999: 83).

Next, the Growth Machine would assume to have some impact on growth in some cities or through certain kind of policies, but most of this is anecdotal. Logan, Whaley and Crower (1999) only identified one instance in the Florida counties where a negative effect of growth controls appeared in a study of a public facilities requirement. The problem is that all these studies do not include information on the political alignments

that underlie the formal policies. Therefore it is premature to say that the Growth Machine or growth coalitions are cause for the ineffective policies or that the policies are ineffective (89).

Overall, Logan, Whaley and Crower identify other influences besides pro-growth coalitions in cities and do not find sufficient evidence to support the impact that Growth Machines have on urban development nor do they find evidence that details the influence of local policies on urban development.

Melissa Gilbert (1999) provides a feminist critique of the Growth Machine thesis. She states than "any analysis that attempts to understand contemporary urban dynamics should be evaluated in terms of its ability to shed light on poor women's daily lives in the city, and the ways in which poor women contribute to the production of urban spaces and urban politics" (95). Three shortcomings were identified: 1) an analysis of power relations is lacking in the conceptualization of inequality between places and people; 2) the conceptualization of politics and agency in the Growth Machine thesis is inadequate because poor women's activism cannot necessarily be understood as a result of Growth Machine politics, and 3) "neighborhood" and "community" are inappropriately interchanged concepts and that women's daily lives cannot be conceptualized entirely through the neighborhood (96).

First, poor women's everyday lives in the city are not only affected by the Growth Machine but are also shaped by political economic processes, gender relations and racism which are not necessarily mediated by Growth Machine activities (Gilbert, 1999: 97).

Second, feminist theory provides for a better understanding of women as knowledgeable agents with multiple changing and potentially contradictory identities that

are self-constructed and socially constructed (Gilbert, 1999: 101).

Third, Molotch's Growth Machine focus on neighborhood provides the basis of the author's ambivalence as to whether they are providing sociology of urban or one of place. Rather the scale at which daily life operates is contingent, but not to suggest that is does not have a structuring role (Gilbert, 1999: 103).

Gilbert provides one perspective of how gender and race or overall power relations play a significant role in the production of urban spaces and urban politics. Her particular focus on feminist theory is just one case in which this is exhibited.

Cochrane (1999) identifies three problems with the Growth Machine all of which stem from the geographic applicability as Gilbert begins to imply in her third criticism. First, he believes that the Growth Machine is too narrowly focused. He thinks it is possible to identify and explore continuing sets of "necessary" relationships that underpin processes of urban politics. Using this kind of analysis helps to show how different places may be able to develop their own distinct political arrangements and identify potential bases for local politics in different places (114).

Another fundamental problem identified with the Growth Machine is that the theorists are ambivalent about its global theoretical scope sometimes stressing the uniqueness of the US and other times stressing the theory's wide relevance (Cochrane, 1999: 115). In addition the approach is unconvincing on how it can be universally applied (121).

Lastly there have been significant shift in the operation of urban politics, which have been picked up in the writing on the Growth Machines and growth coalitions. The problem is that instead of linking various changes in an overall analysis, the different

aspects of change have been addressed in a compartmentalized fashion (Cochrane, 1999: 123).

The above theorists have listed several critical issues with the Growth Machine theory. As previously identified, the theory is applicable in many situations, but as can be seen is not universally applicable as Molotch tries to stress. Several additions can be made to the 1976 rendition of his theory to expand its reach to 2002 which would include addressing empirical verification of the hypothesis, power relations, and geographic applicability.

Molotch addresses many of these theorists' issues. He does feel more supportive research is needed and that localities will differ from place to place. He believes it can be universal, but not in the sense that it can be applied in every location (1999). When he created the Growth Machine it was at a time to initiate the social understanding of place building where there were few notions available to link the issue of community power and city or urban place coherently (1976: 2).

These criticisms are taken into consideration when applying the Growth Machine to the process of zoning board's approval for variances. The Growth Machine contains specific reference to the land use policy in the United States, the localities which it will be applied, and makes specific reference to zoning problems. Again the Growth Machine may not be applied in every locality. Therefore, the characteristics and dynamics of an area are identified to determine the application of this hypothesis.

Zoning regulations within certain townships were preliminarily evaluated including their enforcement as well as the application of the Growth Machine on the

regulatory process. The preliminary findings assisted in the development of research needs, objectives, and plan.

Research Needs

While local policies, including those about local development, have been explained by the impact of external forces (Elkin, 1987), local insurgent citizen movements (Coleman, 1957; Henig, 1982; Swanstrom, 1985), middle-class environmentalism (Calavita & Caves, 1994; Frieden, 1979; Neiman & Loveridge, 1981), and institutional factors, fairly modest attention is devoted to how local bureaucracies might shape the substance of local policies (Nieman and Fernandez, 2000: 2). While understanding the relationship of zoning and zoning administration, planning, and achieving success in community development is also required (Smith, 1983: 111).

Many research needs can be listed to address the problems of zoning variances and sprawling development. This research will focus on three of these needs: 1) knowing the approval rates, types of variances, and legality of decisions, 2) identifying the environmental effects of variances, and 3) understanding the dynamics of the zoning board and their approval process. Zoning variances have not been referenced in land use, planning and other related literature as having an effect on sprawling development. As found in my preliminary findings, zoning variances may play an important role.

Initial research into zoning's contribution to sprawling development examined two townships within southeastern Chester County that encompass Valley Creek Watershed. This preliminary research focused on the elements of the Growth Machine including the enforcement of zoning requirements, variances and special exceptions, and composition of zoning boards. The overall approval rate for zoning variances and special

exceptions is 89% for East Whiteland Township and 82% for Tredyffrin Township. The only substantial variance from this rate occurs in the approval of aesthetic zoning variances in Tredyffrin Township.

The composition of the zoning boards were evaluated for the following characteristics: gender, occupation, and length of term. The goal was to preliminarily determine the extent of diversity and turnover. The composition of both zoning boards is overwhelmingly male (96%). In addition, a significant overall majority, 55%, are employed as attorneys, specifically in Tredyffrin Township, fully 89% of the zoning board are attorneys which prevents a diversity of knowledge when dealing with decisions that affect health, economics and environment of the township. These professionals are of similar income levels which may be a factor of the demographics of the area, but this requires a stricter selection process by the Board of Supervisors. The average term of office for a zoning board member is 8.3 years in Tredyffrin Township and 5.4 years in East Whiteland Township. The range of years of service runs from 4-17 years for Tredyffrin Township and 2-14 years for East Whiteland Township (only 4 people exceeded the 5 year terms).

Based upon preliminary analysis and findings, the following conclusions regarding Growth Machine dynamics were made: First, the extent of diverse and elite participation in the zoning boards indicates the possible existence of a Growth Machine in two townships within Chester County, Tredyffrin and East Whiteland. In Tredyffrin Township, the zoning boards are dominated by males and attorneys, and the length of holding zoning board positions is extremely long. In East Whiteland Township, the board is composed of several types of professions with only three attorneys being present

on the board and shorter lengths of participation by board members. So by way of comparison, the Growth Machine in Tredyffrin Township is more likely stronger than the Growth Machine in East Whiteland Township.

Secondly, the enforcement of zoning regulations is not strict in either township, with almost 90% of zoning variance and special exception requests being approved. The only type of variance/special exception that does not experience this type of high approval probability is aesthetic variances in Tredyffrin Township. This is most likely due to protection of property values which are the highest in the county. In addition, the trend in variance approval in Tredyffrin Township is increasing, and has remained steady for nearly two decades in East Whiteland Township. Thus there is no indication of any trend toward greater strictness in enforcing zoning regulations in either township.

This research prompted further examination on how important zoning regulations and zoning boards are in controlling and contributing to sprawling development. Therefore additional research needs were identified that are proposed in the following shortfalls in the literature:

1) Smith (1983) writes, "The greatest single cause for the failure of zoning to effectively guide land-use development so as to result in the betterment of our urban form has been the misuse of the variance technique – sometimes mistakenly or through ignorance and sometime through purposeful and willful intent." Many sources have made reference to the uninhibited granting of variances, yet very few studies have gathered statistics on variance approval rates and the legality of these decisions. The primary goal of this research is to provide empirical findings to support these references.

2) As previously referenced above much of the literature related to zoning briberies, scandal and corruption are anecdotal (Haar and Kayden, 2001, Senville, 2002). Empirical research is required to verify these assumptions as well as to provide legitimacy to demanded and requested changes of these policies and boards. This research will include information on the composition and turnover of zoning board members. I will compare the diversity to the socioeconomic background of the township as well as the rates of zoning variance approvals to determine if there is significant contribution of the diversity and turnover rate of the zoning board members and economic influences to differing approval rates.

3) According to the EPA, runoff is the nation's largest source of water quality problems and accounts for 40% of US rivers, lakes, and estuaries failure to meet water quality standards (Gillham, 2002: 115). Runoff problems have been noted for many years with the large increases in development of open spaces, yet quantification relating the amount of impervious surface increases to development on a yearly basis does not exist. Although this study will only quantify the increase in impervious surface or "impervious creep" as it relates to variance approvals, it will demonstrate with data how important policy/regulations are in controlling environmental damage.

Research Objectives

The objective of this research is to examine the composition of the zoning board, the socio-economic influences in the township, the effects of these influences on zoning board variance decision-making, and the impact of zoning variances on sprawling

development. Specifically, the research goals include: obtain statistics of zoning variances, document environmental effects, determine legality of approvals/denials, and gather background of zoning board members and socio-economic composition of the townships. According to Molotch's Growth Machine theory, the following would be expected. First, there would be a high proportion of real-estate professionals in the local zoning decision-making process. Second, as a result of this participation, there would be little or ineffectual enforcement of zoning laws. This would result in little effective control over zoning variance approvals in a given geographic region, and some variance decisions that are illegal. Third, decisions/approval ratings are influenced by economic factors.

The following questions are to be answered by this research: 1) how does the approval of zoning variances contribute to sprawling development; 2) what is the effect on the environment; and 3) does the composition of the zoning board and socio-economic differences influence the decision-making so that variance approval differences are identified among localities.

Research Overview

This research creates empirical findings for both zoning variances and its relationship to sprawl as well as for the theoretical argument of the Growth Machine. The work addresses the zoning and sprawl literature shortfalls as specifically identified above. Findings include zoning variance statistics: percentage approval rates, percentage of variances for new development, breakdown of variance types, and percentage of decisions illegal which will provide empirical research that supports literature assertions of "the zoning game", "symbolic rituals", "ineffectual policy" and so on. The

documented development effects provide: quantity of impervious surface, documented waterways impacted, and notation of other important environmental effects which provide the first documented relations of zoning variance approvals to changes in the environment. Growth Machine analysis has never been conducted with respect to zoning variances and zoning boards. This analysis produces information on: zoning board member characteristics, duration of terms served by members, and socio-economic characteristics of the area as well as the relationship of these factors on variance approval rating. The empirical findings provide, at the least, a first time analysis of zoning variance policy within Pennsylvania.

First, I hypothesize that zoning variances contribute to sprawling development more so than the literature represents. Second, the variance effects on the environment represent a portion of the overall environmental effects caused by sprawling development. Third, the composition of the zoning board and socio-economic composition of the township causes differences to be identified among the localities examined, so that approvals for specific types of variances as well as overall approval rates and legal decisions will vary. Outlying, unforeseeable factors may influence the identification and support of the Growth Machine theory such as changes to or unstudied municipal or state regulations/policies that may influence approval rates more so than board member backgrounds, influences by other boards, commissions or supervisors within the township or county, and/or other characteristics of the board members not researched. These outlying factors may be part of further research initiatives. The following research design intends to answer the above questions and prove the listed hypotheses.

CHAPTER 3: METHODS

Research Design

Overview

The following variables are identified for each zoning variance: year, variance number, associated with new development, type of variance by effect and zoned area, legality, and documented environmental effect. Zoning board information includes: township guidelines for zoning board structure, zoning board member name, years served, profession and/or professional background, location of residence, and gender. Records for zoning variances and zoning boards are collected from the township municipal offices for 1981 – 2001. Lastly, socio-economic statistics gathered from the US Census Bureau comprise of the median property value, the median household income, population, number of housing units, and breakdown of population by gender and race. The relationship among these variables was analyzed using regression analysis and Altman's Typology of Graphic Displays.

Geographic Area

The chosen area of research, Chester County, is located in the Delaware Valley region of southeastern Pennsylvania between Berks and Lancaster Counties to the west, Montgomery County to the north, Delaware County to the east and the State of Maryland to the south. The County is comprised of 762 square miles with 73 incorporated municipalities (CCPC, 1997). Being a Third Class County (population falling within 225,000 to 500,000 range), it elects three county commissioners to four-year terms. These commissioners in turn elect commissioners to other county commissions that fall under their jurisdiction like the Chester County Planning Commission (CCPC, 1997).

The predominant sector of the economy was agriculture until the mid 1900's. Farming and industry continue to prosper while the economy gradually becomes more financial, trade, and service oriented in the 21st century. Originally an area dominated by farmland is transitioning to industry and residential developments (CCPC, 1997).

In 1950, the population of the county was 159,141. As of the 2000 US census, population has increased to 433,501 persons (see Figure B.1). A large percentage of the increase in population occurred between 1950-1970. Between the decades of 1940-1950, 1950-1960, and 1960-1970, the percent change in population was 20.1%, 32.5% and 31.9% respectively. Percent of total increase due to net in-migration was 51.6% from 1950-1960 and 61.1% from 1960-1970. Although the percent increase in population for the last two decades has been lower (average of 16% increase), the percent of total increase due to net in-migration has remained relatively the same. As a result of this increase in population, total housing units have increased from 42,143 in 1950 to 163,773 in 2000 (CCPC, 1997, US Census Bureau, 2000).

This location was predetermined through research on the Valley Creek Watershed within Chester County. The research is funded by the National Science Foundation in conjunction with the Environmental Protection Agency and US Department of Agriculture. The chosen model watershed, Valley Creek, is a tributary of the Schuylkill River that runs through Valley Forge Historical National Park, 20 miles from central Philadelphia. The 23 square mile watershed containing limestone-fed Valley Creek and Little Valley Creek is unusual in that it has supported a population of brown trout throughout much of its land-use history. In addition to the common effects of development such as increased surface runoff and sediment loading, the watershed has

experienced point-source pollution problems from RCRA and CERCLA hazardous waste sites and dewatering of the aquifer due to quarrying operations and pumping for municipal water supply. The area is unique from a social science perspective in that local citizens' groups have developed sophisticated and effective methods of mitigating effects of development on their highly valued streams (Owens, 1993).

This research focuses on eight townships of the 57 townships/73 municipalities (cities, boroughs and townships) in Chester County, Pennsylvania: Birmingham, East Bradford, East Goshen, Easttown, East Whiteland, Pennsbury, Tredyffrin, and Westtown. These townships represent approximately 16% and the eastern portion of Chester County; they represent areas with a large influence (influx of residents, etc.) by the nearby city of Philadelphia (see Figure B.17 in Appendix). Selected townships are displayed in Figure 3.1. Townships any further would be more likely influenced by other cities and areas.

The original research design included a research group of 10 townships; for numerous reasons the size of the group is only 8 townships. First, one of the selection criteria was a township without a large municipality like West Chester due to the presence of more than one zoning board and planning commission. The second criteria was to include the townships within the eastern portion of the county – closer to Philadelphia. Based on these selection criteria, 10 townships were selected, but some townships were weaned out of the process such as Schuylkill and West Goshen which consisted of large municipalities. In addition, several townships did not have records easily accessible or did not have all of the records. These townships are as follows: Uwchlan, Thornbury, West Pikeland, Charlestown, and West Whiteland, and Pocopson

Township never returned any phone calls. Selecting additional townships would extend beyond the scope of the area.

The preliminary research focused on Tredyffrin and East Whiteland townships located in the Greater Philadelphia Metropolitan area, Valley Creek Watershed, and the dynamics of Philadelphia which led to an influx of residents to these areas. These additional townships in Chester County provide for a mix of areas. Comparison of the geographical size and population of the townships is provided in Table 3.1.

Birmingham and Tredyffrin townships represent the smallest and largest townships by geographic size, respectively. Tredyffrin also comprises the largest population of the 8 townships examined, and Pennsbury has the smallest population. This geographic area was originally surrounded by open land used predominantly for farming. However, this area is experiencing rapid urbanization, and thus undergoing a transition from farmland to industrial and residential development (CCPC, 2000). Hence they provide an excellent site for the examination of zoning variances and sprawling development.

Table 3.1 Township Characteristics

Township	**Geographic Size (square miles)**	**Population (2000 Census)**
Birmingham	6	4221
East Bradford	15	9405
East Goshen	10	16824
Easttown	8	10270
East Whiteland	12	9333
Pennsbury	10	3500
Tredyffrin	20	29062
Westtown	9	10352

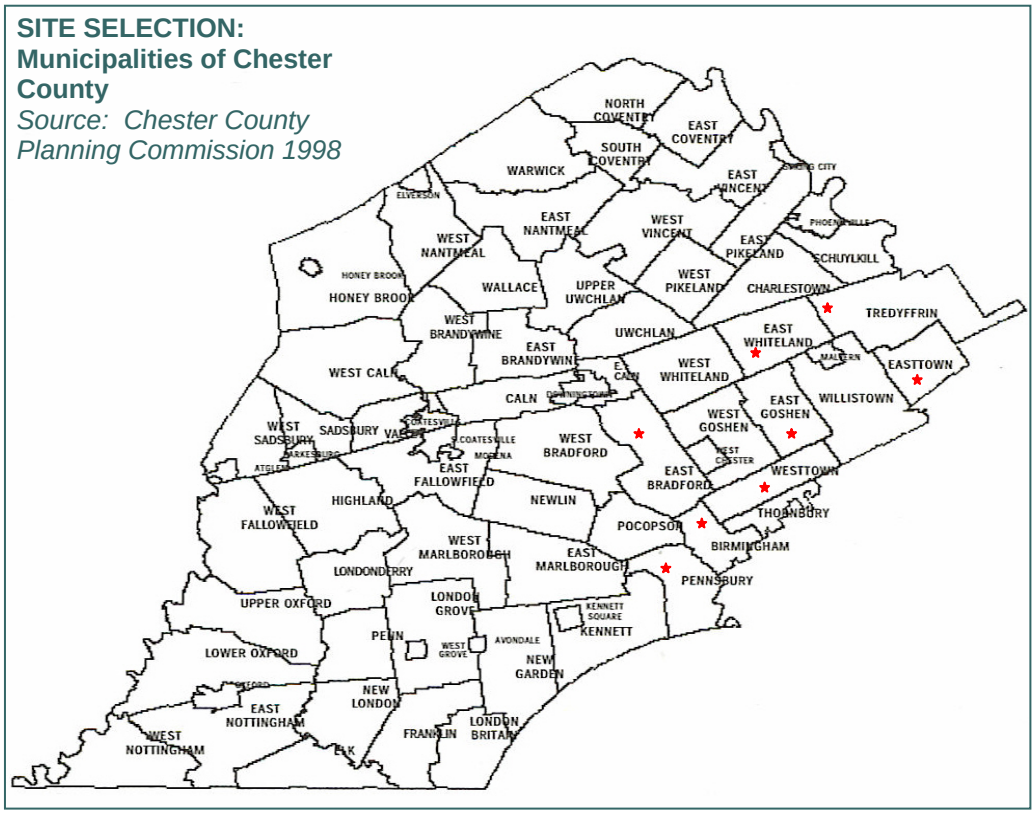


Figure 3.1 Site Selection Map of Municipalities in Chester County

Data Collection

This research is collected using unobtrusive measures. Running records are provided by the townships (Webb et al, 1966). Research as detailed in this proposal has not been identified in the reviewed literature. These methods are required to answer the following questions: 1) how do zoning variances affect the amount of sprawling development; 2) how do approvals affect the natural environment, and 3) does the diversity of the zoning board members and socio-economic composition of the township affect the approval rating. Figure B.18 in the Appendix lists the major investigative elements.

Zoning Variance Statistics

To examine how effectively zoning regulations are applied by these zoning boards, the number of requested zoning variances and the resultant decisions are examined. This allows the calculation of the probability of acquiring a variance and is thus an indicator of the rigorousness of zoning law enforcement. Each township holds records in its municipal building for each appeal received. Table A.1 provides the locations for each township's municipal office. Each year's records are reviewed to obtain the number of variances granted per year, as well as the total number of variance appeals received for the period 1981-2001. The year and variance number are documented for each variance, but not the name of the entity/entities submitting the variance application to retain anonymity for those not acknowledging their participation in this process.

Appeals are coded by their effect, aesthetic or environmental, and the type of zoned area to be developed, commercial/industrial or residential. "Aesthetic" appeals typically include requests to build walls, fences, porch enclosures, etc. that would have little to zero environmental impact. "Environmental" are those appeals that have some type of environmental impact. "Commercial/industrial" or "residential" variances are requested by entities for use on a commercial/industrial or residential site.

Zoning variances also play an important role in determining the approval of new development. Often, new developments require approval from the zoning boards for a variance or special exception in relation to zoning in the area of development. Therefore, prior approval by the zoning board is required for development to occur or continue. New development is classified as an area of land not previously developed which does

not include additions or renovations to properties. The number of zoning variances that are received as part of a new development are counted on a yearly basis between the period of 1981-2001.

All of this information is important and new, but it is also important whether these variances are approved according to the standards as outlined by the PAMPC. The minutes for each variance are reviewed to determine if they were approved or not approved legally according to the guidelines below as found in the PAMPC (see section of the guidelines in Appendix C):

1. Unique physical circumstances or conditions such that the property cannot be developed strictly adhering to the provisions of the zoning ordinance.
2. The authorization of the variance is needed to enable reasonable use of the property.
3. The hardship was not created by the applicant.
4. The variance does not alter the character of the neighborhood or district or is not detrimental to the public welfare.
5. The variance represents the minimum that will provide relief and will be the least modification to the regulation.

In many cases additional court cases are used to support decisions made by the zoning board. These court cases set precedence for variances and the potential for their approval outside of the guidelines provided by the PA MPC. If, additional court case references are not provided in the minutes, I assume that all decisions are based upon PA MPC, and my decision for legal or illegal are based on this assumption.

Environmental Effects

Variance applications provide details for environmental impacts that the development may cause either directly by amount of impervious surface created or indirectly by runoff into nearby waterways. Each application is reviewed for environmental effects: 1) amount of impervious surface associated with the variance; 2) waterways nearby that may be directly affected; and 3) any additional environmental impacts.

Impervious surface is recorded in acres increased per the change in developed area as well as for new development if the variance is needed. The names of waterways are documented as well as any additional information that may be relevant such as direct correlation to fish populations, deforestation, etc. Additional information such as opposition by an environmental organization or residents due to environmental effects, aesthetic or some other effect is also recorded.

Zoning Board Dynamics

According to Molotch's Growth Machine theory, planning and/or land-use regulations tend to be manipulated by the property elites, especially when Growth Machine trends are present in an area. Thus the socio-economic composition and diversity of the zoning board is one good indicator for identifying the presence of the Growth Machine (see Appendix Figure B.18). To develop a measure of the extent of diverse participation in local zoning boards, the following information is obtained for the board members of each township's zoning board: gender, profession/professional experience, location of residence, and years on board. This information is collected from board members' resumes, which were sent to the township by these individuals when

they applied for the board position. If a resume is not available, personal contact with the township or board member is made. Additional information may include any conflicts of interest as well as environmental background. Zoning board member names are for public record, but are not included in this study since personal information obtained is typically not available to the public.

As noted in Chapter 2, the PAMPC outlines general guidelines for development and operation of the zoning board. Specific guidelines adapted by each township are identified on their website or in their office and compared to the operations from 1981 – 2001.

Social and Economic Statistics

Socio-economic information is obtained for each township from the U.S. Census Bureau website, since the socio-economic composition of an area gives an indication as to the type of people sitting on the board as well as possible reasons for different rates of approval and prevalence of the Growth Machine (see Appendix, Figure B.18). These characteristics include: median property values, median household income, number of housing units, population, and breakdown of population by race and gender. The socio-economic stats are compared to the variance statistics and member composition of zoning boards.

Data Analysis

This research represents quantitative as well as qualitative information. The units of analysis (variables) collected are provided in a table format, time series graphs, and bar charts. Thoughtfully reported percentages, ratios and charts and graphs can often lead to powerful insights (Patton and Sawicki, 1993:115). According to Altman's Typology of

Graphic Displays (Patton and Sawicki, 1993:116), there are five comparison types: component, item, frequency distribution, corelationships, and time series. This data is compared by component - percentage of total, item – differences, corelationships – A is related to B; A increases as B or A does not increase with B, and time series – trends. These percentages are displayed in a table for means of comparison between townships and variables and bar charts for comparison or to represent differences yearly.

The component comparison is provided in a table format displaying the percentage of totals from 1981 – 2001 for each variance variable described above: variances approved, illegal, associated with new development, type of variances (aesthetic/environmental and residential/commercial), types of variances approved, and waterway impacted. Component comparison is also provided for population statistics and zoning board member information: professions and gender.

Item, also described as differences, is typically represented in a bar chart. Several charts are provided for types of variances, types of variances approved, number of variances received, approval ratings, impervious surface totals, and zoning board characteristics.

Corelationships is also defined as how A is related to B; A increases (decreases) as B, and A does not increase (decrease) with B. The corelationship is provided in a table to compare how certain variables relate to each other. According to my hypotheses, I compare socio-economic stats to zoning boards' diversity, socio-economic stats to variance approval ratings, and zoning board diversity to variance approval ratings and legality of decisions.

Time series consists of repeated measures taken on an aggregate unit with many data points, plotted on a curve with respect to time (Rossi, et al, 1999:267; Patton and Sawicki, 1993:116). These graphs are used to identify potential interventions or trends over times. The only times series graph generated from this data collection is population of the county and number of variances received yearly. The data set is analyzed for trend changes in number received and to indicate which years there was an increase in variances. This would potentially indicate an increase in development and/or changes in zoning code.

Regression analysis is conducted for select variables. Data points are scatter plotted, and the trend line is created along with the R-squared value. The goal of regression analysis is to determine the values of parameters that would cause a function to best fit a set of data observations that you provide. In linear regression, the function is a linear (straight-line) equation. The R-squared value is best when closer to one.

The following table 3.2 lists the observations or data collection and the potential variables that may affect them.

Table 3.2 Effects of Variable 2 on Variable 1

	Variable 1	**Variable 2**
1	Variance Approvals	Zoning Board Diversity/Compliance with PAMPC
2	Aesthetic/Environmental Variance Approval Rating	Township Property Values/Value of Municipality
3	Amount of Impervious Surface/Documented Environmental Impacts	Variance Approvals/Approvals for New Development
4	Zoning Board Diversity	Population by Race/Property Values

Case Studies

Case studies represent a qualitative approach to the evaluation process that tends to be less easily summarized in numerical form (Rossi et al, 1999: 271). Three townships were selected to provide information that cannot be quantified, but provide useful background or insight to the process and study.

Design Advantages

This research design has a fairly simple structure. The data collected is obtainable, quantifiable, and primary information. Comparison studies are non-existent which allowed for an open interpretation and personal structure. Preliminary research also set the stage for developing this design and formulating hypotheses and questions.

Extensive literature citations provide anecdotal comments about the scandals with zoning variances, the implications of the Growth Machine in planning districts, and the environmental impacts caused by development. These citations provided the framework for the research agenda, and set realistic goals for proving or disproving the conjectures.

Design Disadvantages

Quantitative data has dehumanizing tendencies, and a better understanding of causal processes can be obtained from qualitative observations; whereas qualitative data is expensive to gather, subject to misinterpretation, and is not usually uniformly collected across all cases and situations (Rossi et al, 1999: 271). Although listed as disadvantages, the design monopolizes at both angles by providing qualitative information in case studies and quantitative information.

This data gathering for the first time has its benefits, but it also has its disadvantages. Without a comparison study or previous data gathering, there is no

comparison to determine if errors were made. Minimal time has been allotted for this project, and to duplicate efforts to verify accuracy would be too time-consuming. Therefore, there is room for error in some of the information gathered.

Determining the legality of individual variance cases is subjective based on sketchy objective measures. In some cases, summary of minutes rather than detailed minutes were provided in the case files; therefore exact duplication of the evaluation process could not be conducted.

The Growth Machine hypothesis does not provide a framework for obtaining empirical information to support the thesis. The variables used to determine the Growth Machine dynamics in each township is minimal. Other factors that may affect zoning board diversity include member selection by Township Manager, number and diversity of willing participants, and general population knowledge of available position. Unfortunately, these additional factors are beyond the scope of this research. The analysis of this sole treatment comes with the understanding that other factors may play a role. Resumes and applications are not available during this research.

Research Products

Products from this research include: 1) contribution to sprawl, zoning and Growth Machine literature/research; 2) empowerment of local non-governmental environmental, activist and social movement organizations; 3) education of state, county and local planning and related governmental commissions and organizations; and 4) contribution to solutions for sprawling development. This research produces an addition to the long-standing literature on problems contributing to sprawling development. Current literature includes very little empirical research on zoning variances and boards

and even less empirical findings on the Growth Machine. This research product is one of the first to provide empirical findings on both matters. To assist in preventing sprawling development county and local governmental and non-governmental groups can use this information to modify local zoning board composition and to analyze other commission member composition; compile and evaluate statistics on approval rates for permits ranging from zoning to building including rezoning. Lastly, this research provokes citizens, organizations and county government to push local officials to evaluate their approval rates and their zoning board member dynamics; hopefully resulting in better control of approval ratings and selection of board members. This overall change will likely have a decelerating effect on sprawling development in combination with other implemented solutions.

Overall, the research helps define the relationship of zoning variances to sprawling development, determine the application of the Growth Machine to the zoning process and helps resolve problems with sprawling development at a local level.

CHAPTER 4: RESULTS AND CASE STUDIES

Overview

The goal of this research was to evaluate the process of zoning variance approval by looking at the dynamics of the zoning board and the socio-economic composition of the township, and the effect of zoning variances on the environment. I hypothesized that variances contribute to increased development, in some cases do not comply with the PAMPC, and have an effect on the environment. I also conjectured that the zoning board dynamics and socio-economic composition of the townships affected the variance decision-making. In answering the research questions and investigating the hypotheses, a gathering of the variance statistics was required, but was not easily available. Individual records were reviewed for each variance for each township. Table 4.1 provides the results from this information gathering.

Zoning variances do contribute to developed land area as evidenced in Table 4.1 impervious surface column and new development column. Zoning variances are requested at the beginning of new development to continue or sometimes initiate new developments in several townships. The amount of impervious surface is also indicative of the contribution of urbanized land area.

Do zoning variances comply with PA MPC? According to the results in Table 4.1, there are many cases in several townships that do not comply with the PA MPC as listed in the illegal variances column. These townships include Birmingham, East Goshen, Easttown, East Whiteland, Pennsbury and Tredyffrin.

The effect on the environment is implied by the increase in impervious surface yearly and in total for each township. In addition, impacted waterways were noted and

totaled in the column titled in Table 4.1. Impervious surface increases affect ground water recharge, runoff to local waterways, and distribute pollutants.

Socioeconomic characteristics and zoning board member dynamics were both compared to variance information. According to Table 4.3 and Figure B.16, these characteristics and board dynamics do play a role in variance decision-making. In Birmingham, Easttown, and Pennsbury, the median household values for 2000 were the highest in comparison to the 8 townships. These same townships approve residential variances with environmental impact less often than commercial variances and have the lowest approval rating of all the townships for environmental, residential variances.

Looking at zoning board dynamics, Easttown Township has one of the lowest approval ratings for variances and has the most females on its board. Pennsbury Township also has the lowest approval ratings for variances, and its board consists of 33% real-estate professionals and only one attorney. Tredyffrin Township has the most attorneys in comparison to the other boards and has the second highest variances approved illegally.

Overall, Growth Machine elements are most prevalent in Birmingham, Easttown, Pennsbury and Tredyffrin Townships based on the real-estate professionals participation on some of these boards, low approval ratings of residential variances, high median household property values, high approval rating of commercial environmental variances and illegally approved variances.

In answering the questions, the data is analyzed by individual townships, comparison among the townships for the research parameters, and case study analysis for select townships. Further discussion as found at the end of this section provides a more robust and detailed picture of the situations present in these townships.

Table 4.1 Variance Statistics Averaged from 1981 – 2001

	Variances	Building Permit		Illegal		Approved		Aesthetic		Aesthetic & Approved		Environ-mental		Env & Approved		Waterway Impacted	Impervious Surface
Birmingham	#	#	%	#	%	#	%	#	%	#	%	#	%	#	%		acres
Commercial	19	5	26	3	16	18	95	5	26	5	100	14	74	13	93	2	1.21
Residential	16	2	13	2	13	12	75	7	44	7	100	9	56	5	56	1	0.02
Total	35	7	20	5	14	30	86	12	34	12	100	23	66	18	78	3	1.23
																Illegal	0.83
East Bradford	#	#	%	#	%	#	%	#	%	#	%	#	%	#	%		
Commercial	6	3	50	0	0	5	83	2	33	1	50	4	67	4	100	2	0.30
Residential	26	2	8	0	0	22	85	3	12	2	67	23	88	20	87	0	0.95
Total	32	5	16	0	0	27	84	5	16	3	60	27	84	24	89	2	1.25
																Illegal	0
East Goshen	#	#	%	#	%	#	%	#	%	#	%	#	%	#	%		
Commercial	19	4	21	1	5	17	89	11	58	10	91	8	42	7	88	1	0.31
Residential	35	14	40	3	9	30	86	3	9	1	33	32	91	29	91	0	0.32
Total	54	18	33	4	7	47	87	14	26	11	79	40	74	36	90	1	0.63
																Illegal	0.02
Easttown	#	#	%	#	%	#	%	#	%	#	%	#	%	#	%		
Commercial	33	4	12	1	3	25	76	20	61	13	65	13	39	12	92	2	0.54
Residential	61	0	0	1	2	43	70	2	3	0	0	59	97	43	73	3	0.60
Total	94	4	4	2	2	68	72	22	23	13	59	72	77	55	76	5	1.14
																Illegal	0
East Whiteland	#	#	%	#	%	#	%	#	%	#	%	#	%	#	%		
Commercial	87	23	26	2	2	71	82	21	24	17	81	66	76	54	82	10	10.08
Residential	71	9	13	6	8	62	87	3	4	1	33	68	96	61	90	2	2.59
Total	158	32	20	8	5	133	84	24	15	18	75	134	85	115	86	12	12.68
																Illegal	0.96
Pennsbury	#	#	%	#	%	#	%	#	%	#	%	#	%	#	%		
Commercial	9	2	22	0	0	7	78	6	67	4	67	3	33	3	100	1	0.85
Residential	27	3	11	3	11	19	70	4	15	3	75	23	85	16	70	2	0.61
Total	36	5	14	3	8	26	72	10	28	7	70	26	72	19	73	3	1.46
																Illegal	0.20
Tredyffrin	#	#	%	#	%	#	%	#	%	#	%	#	%	#	%		
Commercial	182	31	17	9	5	123	68	116	64	74	64	66	36	49	74	1	19.08
Residential	249	13	5	48	19	197	79	68	27	51	75	181	73	146	81	8	8.13
Total	431	44	10	57	13	320	74	184	43	125	68	247	57	195	79	9	27.21
																Illegal	11.22
Westtown	#	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	
Commercial	23	10	43	0	0	15	65	4	17	2	50	19	83	13	68	3	2.48
Residential	21	0	0	0	0	19	90	6	29	6	100	15	71	13	87	0	0.07
Total	44	10	23	0	0	34	77	10	23	8	80	34	77	26	76	3	2.55
																Illegal	0.00

Data Analysis: Individual Townships

Birmingham

Birmingham's population has been increasing since 1980 as shown in Table A.2. The population has increased from 1,584 persons to 4,221 persons. The number of housing units in the township has also increased since 1980, from 492 units to 1,413 units (see Table A.3). As of 2000, the median household income ($132,620) and the median household value ($335,900) are the highest among all the townships in this study (see Table A.4).

Thirty-five variances were submitted to Birmingham Township from 1981 – 2001. The number of variances peaked in 1988 with a gradual decline years following (see Figure B.2). The overall percentage approval for variances is 86%. Figure B.3 does not exhibit any significance from year-to-year for percentage approval ratings.

Birmingham received approximately the same number of commercial variances (19) as residential variances (16) (see Table 4.1). Twenty-six percent of the commercial variances and 13% of residential variances were associated with new development. Ninety-five percent of commercial variances get approved whereas residential variances were approved 75% of the time. Commercial variances had more documented environmental impacts than residential variances, and commercial variances with environmental impact were more often approved (93%) than residential variances with environmental impact (56%). Aesthetic variances were less frequent overall, but were granted in all cases.

Fourteen percent of the total variances were found illegal (see Table 4.1). Commercial and residential variances were both found illegal in almost the same amount

of cases. As a result of these illegal variances, 0.83 acres was developed. In total 1.23 acres was developed over 1981 – 2001 for all variances. More land was developed as a result of commercial variances (1.21 acres) as opposed to residential variances (0.02 acres). Three variances documented potential impact on waterways.

Table A.5 provides the details for the Birmingham Zoning Board Members' backgrounds and years of services. All eight members were male (100%). Three members served for 12 – 14 years on the board, whereas the other five members served for terms of three years or less (or may be still serving). All of the board members live within the same vicinity. Five board members are from diverse professional backgrounds, but three board members' professions are unknown. Birmingham has no known attorneys on its board.

East Bradford

East Bradford's population has been increasing since 1980 as shown in Table A.2. The population nearly doubled from 1980 to 1990, 3,219 to 6,440 persons, respectively, and then jumped to 9,405 persons in 2000. The number of housing units in the township has also increased at about the same (see Table A.3). In 1980, the township had 1,108 housing units which increased to 2,267 in 1990 and 3,150 in 2000. As of 2000, the median household income ($100,732) ranked third among the townships in this study with the median household value ($253,700) ranking fifth (see Table A.4).

Thirty-two variances were submitted to East Bradford Township from 1981 – 2001, the lowest number among the townships in this study. Variances were not received or files were lost before 1989. The number of variances peaked in 1989 and 1990 with a gradual decline years following (see Figure B.2). The overall percentage approval for

variances is 84%. Figure B.4 does not exhibit any significance from year-to-year for percentage approval ratings.

East Bradford received more residential variances (26) than commercial variances (6) (see Table 4.1). Fifty percent of the commercial variances and 8% of residential variances were associated with new development. Eighty-three percent of commercial variances get approved, and residential variances were approved 85% of the time. Residential variances had more environmental implications than commercial variances, and commercial variances with environmental impact were always approved (100%) in comparison to residential variances with environmental impact (87%). Aesthetic variances were less frequent overall, and were less often granted (60%).

None of the variances were found illegal (see Table 4.1). In total 1.25 acres was developed over 1981 – 2001 for all variances. More land was developed as a result of residential variances (0.95 acres) than commercial variances (0.30 acres). Two variances documented potential impact on waterways.

Table A.6 provides the details for the East Bradford Zoning Board Members' backgrounds and years of services. Five of the six members were male. Two members served for 12 years on the board, whereas the other six members served for terms of two years or less (or may be still serving). All of the board members live within the same vicinity, and are from diverse professional backgrounds. Two members are lawyers, and only one member's profession is unknown.

East Goshen

East Goshen's population has been increasing since 1980 as shown in Table A.2. The population increased from 10,021 persons in 1980 to 16,824 in 2000. The number of

housing units in the township has also increased at about the same rate (see Table A.3). In 1980, the township had 3,945 housing units which increased to 7,496 in 2000. As of 2000, the median household income ($64,777) was the lowest among the townships in this study with the median household value ($241,600) ranking sixth (see Table A.4).

Fifty-four variances were submitted to East Goshen Township from 1981 – 2001. The number of variances peaked in 1988 with a second peak between the years 1993 - 1997 (see Figure B.2). The overall percentage approval for variances is 87%. Figure B.5 does not exhibit any significance from year-to-year for percentage approval ratings.

East Goshen received more residential variances (35) than commercial variances (19) (see Table 4.1). Forty percent of the residential variances and 21% of commercial variances were associated with new development. Eighty-nine percent of commercial variances get approved, and residential variances were approved 86% of the time. Residential variances had more environmental implications than commercial variances, and both commercial and residential variances with environmental impact were often approved, 88% and 91% respectively. Aesthetic variances were less frequent overall. Most of the aesthetic variances were commercial, and these variances were approved 91% of the time.

Seven percent of the variances were found illegal: five percent of commercial and nine percent of residential (see Table 4.1). Illegal variances constituted 0.02 acres of impervious surface approvals. In total 0.63 acres was developed over 1981 – 2001 for all variances, with almost equal distribution between commercial and residential variances. Only one variance documented potential impact on waterways.

Table A.7 provides the details for the East Goshen Zoning Board Members' backgrounds and years of services. Eight of the nine members were male. Three members served for greater than 9 years on the board, whereas the other six members served for terms of four years or less (or may be still serving). The residence of the board members was not available. Three members worked in a law firm, two of which are attorneys. One member is a food broker and another is a developer. There were no records of the other members' professional backgrounds (4 members).

Easttown

Easttown's population has been gradually increasing since 1980 as shown in Table A.2. The population increased from 9,064 persons in 1980 to 10,270 in 2000. The number of housing units in the township has also increased at about the same rate (see Table A.3). In 1980, the township had 2,937 housing units which increased to 3,862 in 2000. As of 2000, the median household income ($95,548) ranked fourth among the townships in this study with the median household value ($316,100) ranking second (see Table A.4).

Ninety-four variances were submitted to Easttown Township from 1981 – 2001, which is the third highest among the townships studied. The number of variances peaked in 1988 with a second peak in 1999 and a decline in between (see Figure B.2). The overall percentage approval for variances is 72%, the lowest among all the townships. Figure B.6 does not exhibit any significance from year-to-year for percentage approval ratings.

Easttown received nearly double the amount of residential variances (61) than commercial variances (33) (see Table 4.1). None of the residential variances and 12% of

commercial variances were associated with new development. Seventy-six percent of commercial variances get approved, and residential variances were approved 70% of the time. Residential variances more often had environmental effects than commercial variances, but commercial variances with environmental impact were more often approved than residential variances, 92% and 73% respectively. Aesthetic variances were less frequent overall. Most of the aesthetic variances were commercial, and these variances were approved 65% of the time.

Two percent of the variances were found illegal: three percent of commercial and two percent of residential (see Table 4.1). Illegal variances constituted 0 acres of impervious surface approvals. In total 1.14 acres was developed over 1981 – 2001 for all variances, with almost equal distribution between commercial and residential variances. Five variances documented potential impact on waterways.

Table A.8 provides the details for the Easttown Zoning Board Members' backgrounds and years of services. Five of the seven members were male. All of the members, except for two, served for greater than 9 years on the board. The residence of the board members was not available. Three members are attorneys, and one member works for an advertising agency. The professional backgrounds of three members are unknown.

East Whiteland

East Whiteland's population increased from 1980 to 2000, 8,468 to 9,333 persons as shown in Table A.2, but declined in 1990 to 8,398. The number of housing units still continued to increase in spite of the decline in population in 1990 from 2,732 to 3,001 in 1990 and then again to 3,460 in 2000 (see Table A.3). As of 2000, the median household

income ($69,500) ranked seventh among the townships in this study with the median household value ($184,400) ranking the lowest (see Table A.4).

One hundred fifty-eight variances were submitted to East Whiteland Township from 1981 – 2001, which is the second highest among the townships studied. The number of variances peaked in 2000 and 1988 (see Figure B.2). The overall percentage approval for variances is 84%, and Figure B.7 does not exhibit any significance from year-to-year for percentage approval ratings.

East Whiteland received slightly more commercial variances (87) than residential variances (71) (see Table 4.1). Thirteen percent of the residential variances and 26% of commercial variances were associated with new development. Eighty-two percent of commercial variances get approved, and residential variances were approved 87% of the time. Residential variances were associated with environmental effect more often than commercial variances, and residential variances with environmental impact were more often approved than commercial variances, 90% and 82% respectively. Aesthetic variances were less frequent overall. Most of the aesthetic variances were commercial, and these variances were approved 81% of the time.

Five percent of the variances were found illegal: two percent of commercial and 8% of residential (see Table 4.1). Illegal variances constituted 0.96 acres of impervious surface approvals. In total 12.68 acres was developed over 1981 – 2001 for all variances, with a majority related to commercial variances (10.08 acres). Twelve variances documented potential impact on waterways.

Table A.9 provides the details for the East Whiteland Zoning Board Members' backgrounds and years of services. All of the fifteen members were male, and four

members served for terms greater than 6 years on the board. The rest of the board members served for terms of four years or less, with some members still possibly serving. Three members are attorneys, and the other members have diverse professional backgrounds.

Pennsbury

Pennsbury's population gradually increased from 1980 to 2000, 2,604 to 3,500 persons as shown in Table A.2. The number of housing units increased as well from 928 to 1,426 from 1980 to 2000 (see Table A.3). As of 2000, the median household income ($106,304) ranked second among the townships in this study with the median household value ($269,200) ranking fourth (see Table A.4).

Thirty-six variances were submitted to Pennsbury Township from 1981 – 2001. The number of variances peaked in 1989 and 2000 (see Figure B.2). The overall percentage approval for variances is 72%, which is the lowest of all the townships. Figure B.8 does not exhibit any significance from year-to-year for percentage approval ratings.

Pennsbury received more residential variances (27) than commercial variances (9) (see Table 4.1). Eleven percent of the residential variances and 22% of commercial variances were associated with new development. Seventy-eight percent of commercial variances get approved, and residential variances were approved 70% of the time. Residential variances more often had environmental effects than commercial variances, and residential variances with environmental impact were less often approved than commercial variances, 70% and 100% respectively. Aesthetic variances were less

frequent overall. Most of the aesthetic variances were commercial, and these variances were approved 67% of the time.

Eight percent of the variances were found illegal, and they were all residential variances (see Table 4.1). Illegal variances constituted 0.20 acres of impervious surface approvals. In total 1.46 acres were developed over 1981 – 2001 for all variances, with a slight majority related to commercial variances (0.85 acres). Three variances documented potential impact on waterways.

Table A.10 provides the details for the Pennsbury Zoning Board Members' backgrounds and years of services. All nine members were male, and five members served for terms greater than 8 years on the board. The rest of the board members served for terms of four years or less, with some members still serving. All members have diverse professional backgrounds with one member's profession unknown. The residences of these members were from similar areas in the township.

Tredyffrin

Tredyffrin's population increased from 23,019 in 1980 to 29,062 persons in 2000 as shown in Table A.2. The number of housing units increased as well from 8,845 to 12,551 from 1980 to 2000 (see Table A.3). As of 2000, the median household income ($82,258) ranked sixth among the townships in this study with the median household value ($269,800) ranking third (see Table A.4).

Four hundred thirty-one variances were submitted to Tredyffrin Township from 1981 – 2001. The number of variances peaked in 1997 (see Figure B.2). The overall percentage approval for variances is 74%, which is the second lowest of all the townships. Figure B.9 shows an increasing trend of approvals from 1986 to 2000.

Tredyffrin received more residential variances (249) than commercial variances (182) (see Table 4.1). Five percent of the residential variances and 17% of commercial variances were associated with new development. Sixty-eight percent of commercial variances get approved, and residential variances were approved 79% of the time. Residential variances were more often associated with environmental effects than commercial variances, and residential variances with environmental impact were more often approved than commercial variances, 81% and 74% respectively. Aesthetic variances were less frequent overall. Most of the aesthetic variances were commercial, and these variances were approved 64% of the time.

Thirteen percent of the variances were found illegal, and the majority was residential variances (see Table 4.1). Illegal variances constituted 11.22 acres of impervious surface approvals. In total 27.21 acres were developed over 1981 – 2001 for all variances, with a majority related to commercial variances (19.08 acres). Nine variances documented potential impact on waterways.

Table A.11 provides the details for Tredyffrin's Zoning Board Members' backgrounds and years of services. Nine of the ten members were male. Five members served for terms of 9 years and more, and the other five members served for terms of five years or less. All members were attorneys, except for a construction project manager and an unknown professional. The residences of these members were unavailable.

Westtown

Westtown's population increased from 6,774 in 1980 to 10,352 persons in 2000 as shown in Table A.2. The number of housing units increased as well from 2,028 to 3,765 from 1980 to 2000 (see Table A.3). As of 2000, the median household income ($85,049)

ranked fifth among the townships in this study with the median household value ($223,000) ranking seventh (see Table A.4).

Forty-four variances were submitted to Westtown Township from 1981 – 2001. The number of variances peaked in 1989 and gradually declined over the years (see Figure B.2). The overall percentage approval for variances is 77%, and Figure B.10 does not show any significance for year-to-year approval ratings.

From 1981 – 2001, Westtown received approximately the same number of residential variances (21) as commercial variances (23) (see Table 4.1). Forty-three percent of the commercial variances and none of the residential variances were associated with new development. Sixty-five percent of commercial variances get approved, whereas ninety-percent of residential variances were approved. Commercial variances had more environmental effects than residential variances, but residential variances with environmental impact were more often approved than commercial variances, 87% and 68% respectively. Aesthetic variances were less frequent overall. Most of the aesthetic variances were residential, and these variances were approved 100% of the time.

None of the variances were found illegal (see Table 4.1). In total 2.55 acres were developed over 1981 – 2001 for all variances, with a majority related to commercial variances (2.48 acres). Three variances documented potential impact on waterways.

Table A.12 provides the details for Westtown's Zoning Board Members' backgrounds and years of services. All of the four members were male, and three of the members served for terms of 15 years and greater. The fourth member served for four years. Three members worked in a law firm, but the other member's professional background is unknown. All of the members lived in West Chester.

Data Analysis: Comparison of Townships

Types of Variances

Figure B.11 provides the number of environmental and aesthetic variances received from 1981 – 2001 for each township. The graph indicates that each township receives more variances with impact on the environment than aesthetic variances. In addition, each township, except for Birmingham and Westtown, receives more residential variances than commercial as shown in Figure B.12.

Figure B.13 displays the percentage of variances approved, from 1981 – 2001 for aesthetic and environmental variances. Every township, except for Birmingham and Westtown Townships, approves variances with environmental impact more often than aesthetic variances, but when breaking down the variances by environmental and aesthetic as well as commercial and residential reveals a slightly different scenario.

Birmingham, East Bradford, Pennsbury, and Easttown Townships are more likely to approve a commercial environmental variance rather than a residential environmental variance as shown in Figure B.14. The other townships, East Goshen, Tredyffrin, Westtown and East Whiteland are more likely to approve a residential environmental variance than a commercial environmental variance. East Goshen, Easttown and East Whiteland are more likely to approve an aesthetic commercial variance than an aesthetic residential variance, but East Goshen and East Whiteland only received three aesthetic residential variance from 1981 – 2001.

Figure B.20 in the appendix demonstrates the relationship between the number of variances and percentage of environmental commercial variances approved. As the number of variances increases the percentage of environmental commercial variances

decreases, which possibly indicates that development reaches its tipping point. The R squared value is 0.77.

These differences are compared to the socio-economic characteristics of the township and to the zoning board dynamics.

Socioeconomic Characteristics and Variances

The demographics of each township for the census year 2000 are provided in Table 4.2. Females comprise the slight majority of every township as well as the working population except for the working females in Easttown and Pennsbury Townships. All of the townships except for Tredyffrin include a population of greater than 90% white race.

Table 4.2 Demographics of Selected Townships in Chester County, 2000

Township	**Percentage of Population Female**	**Percentage of Population White**	**Percentage Working Females***
Birmingham	50.5	94.4	53.3
East Bradford	52.1	93.5	61.1
East Goshen	52.4	94.4	53.9
Easttown	51.8	93.8	48.7
East Whiteland	54.3	89.6	56.9
Pennsbury	53.5	96.0	43.6
Tredyffrin	52.7	90.9	57.8
Westtown	51.0	94.0	63.1

* Females of ages 16 and over.

Socioeconomic characteristics are compared to variance approval ratings averaged from 1981 – 2001 in Table 4.3. As previously noted, the four townships with

the highest median household value for 2000 included Birmingham, Easttown, Tredyffrin and Pennsbury. All of the townships in the study, except for East Whiteland, are valued higher than $199,999, whereas the majority (59.4%) of the households in Chester County is valued at $199,999 and less (US Census Bureau, 2000).

Three of the four townships with highest median household value (except Tredyffrin) approve residential variances with environmental impact less often than commercial variances. These three townships have the lowest approval rating of all the townships for environmental, residential variances. Many of the residential variances submitted to Tredyffrin Township were associated with large scale residential developments. Figure B.19 in the Appendix demonstrates the correlation between median property values and residential environmental variance approval. For all the townships the R-squared value is 0.73, as median property value increases, percentage residential environmental variance approval declines.

Figure B.21 plots percentage of commercial variance approval as a function of median household income. In this graph, the relationship is not that strong (R squared = 0.12), but the following Figure B.22 in the appendix plots the townships except for East Whiteland and East Goshen. In this plot the relationship is very strong (R squared = 0.91). East Goshen and East Whiteland have the lowest median household incomes that it would appear they welcome the new development.

Table 4.3 Socio Economic Characteristics (2000) Compared to Variance Approval Ratings

	Median Household Income	Median Household Value	Aesthetic Approval Rating		Environmental Approval Rating	
			Residential	Commercial	Residential	Commercial
Birmingham	$ 132,620	$335,900	100%	100%	56%	93%
East Bradford	$ 100,732	$253,700	67%	50%	87%	100%
East Goshen	$ 64,777	$241,600	33%	91%	91%	88%
Easttown	$ 95,548	$316,100	0%	65%	73%	92%
East Whiteland	$ 69,500	$184,400	33%	81%	90%	82%
Pennsbury	$ 106,304	$269,200	75%	67%	70%	100%
Tredyffrin	$ 82,258	$269,800	75%	64%	81%	74%
Westtown	$ 85,049	$223,000	100%	50%	87%	68%

Environmental Impact

As discussed above, the majority of variances contributed to impervious surface and/or potentially affected nearby waterways. Table 4.4 lists the area of each township in acres, the impervious surface totals (just including building lots) from variances, and the number of variances indicating potential for waterways to be impacted from the variance approval. Previous Table 4.1 lists the total impervious surface (both legal and illegal) for residential and commercial, and then lists out the impervious surface total for just illegal residential and commercial variances. In some cases the amount of impervious surface

was not provided; the following lists the number of cases for each township: Birmingham – 6, East Bradford – 5, East Goshen -1, Easttown – 16, East Whiteland – 21, Pennsbury – 6, and Tredyffrin – 61. The number of cases without impervious surface amounts for East Whiteland and Tredyffrin could significantly increase the total acreage if provided.

Table 4.4 Environmental Impact from Variances Approved for Each Township, 1981 – 2001

	Area of Township (acres)	**Impervious Surface Totals from Variances (acres)**	**Number of Variances Indicating Waterways Impacted**
Birmingham	3840	1.23	3
East Bradford	9600	1.25	2
East Goshen	6400	0.63	1
Easttown	5120	1.14	5
East Whiteland	7680	12.68	12
Pennsbury	6400	1.46	3
Tredyffrin	12800	27.21	9
Westtown	5760	2.55	3

Tredyffrin (12,800 acres), East Bradford (9,600 acres) and East Whiteland (7,680 acres) are the largest sized townships in this study. The approved variances from Tredyffrin, East Whiteland and Westtown have contributed the most impervious surface in comparison to all the townships, 27.21 acres, 12.68 acres and 2.55 acres, respectively. Figure B.15 provides a breakdown of impervious surface contributions per township by variance type, commercial or residential. Tredyffrin, East Whiteland, Westtown and

Birmingham Townships contribute more impervious surface through commercial variance approvals than residential and approve these variances at a rating of 74%, 82%, 68% and 93%, respectively.

East Whiteland, Tredyffrin, and Easttown had the most number of variances indicating potential for impact on waterways. Some of the waterways listed for potential impact as a result of variances included: Brandywine Creek, Little Valley Creek, and Valley Creek. In addition, township minutes commented on flood plains, streams and springs also being affected by variance approvals.

Zoning Board

Each township modified the PA MPC to develop their standards for zoning board development and operation. Table 4.5 provides the number of board members and time frames for service for each township. Each of the townships conform to the number of zoning board members serving at one time, but they consistently allow succession of the same board members rather than incorporating new individuals onto the board.

Table 4.6 provides a summary of basic characteristics of the township zoning board members. Some of the board members' professions are unknown which can be found in the Appendix. The townships with the most zoning board members from 1981 - 2001 include East Whiteland, Tredyffrin, Pennsbury and East Goshen, and the zoning board members in Westtown, Tredyffrin and Easttown Townships serve the most years on their respective boards. Most of the zoning boards consist of males as shown in the table. Four of the townships have females serving on the boards, but only one to two females. These townships include East Bradford, East Goshen, Easttown, and Tredyffrin.

Table 4.5 Township Zoning Board Development and Operation

Township	Number of Zoning Board Members	Number of Alternate Members	Time Frame for Service per Member
Birmingham	3	0	3
East Bradford	3	1	3
East Goshen	3	0	3
Easttown	3	2	3
East Whiteland	5	2	5
Pennsbury	3	1	3
Tredyffrin	3	3	3
Westtown	3	2	3

The typical array of professions found on zoning boards is comprised of lawyers and construction/real estate professionals which is considered an aspect of the Growth Machine. Some of the differing professions include a dentist, accountants, a reverend, college professors, a medical doctor, and business/corporate administrators. The townships with the least diverse professionals are as follows: Tredyffrin, Westtown and Easttown. These townships have the most attorneys and/or a small number of zoning board members.

Figure B.16 depicts a better comparison of the zoning board characteristics in percentage of zoning board members to percentage approval ratings for variances and the percentage of variances approved illegally. In this figure four townships stand out, Easttown and Pennsbury have the lowest variance approval ratings, and Birmingham and Tredyffrin have the highest rates of illegal variances.

Easttown Township has one of the lowest approval ratings for variances, and has the most females on its board and 7 board members from 1981 - 2001. Still, 86% of its

board consists of real estate professionals, and three of the members' professions are unknown. Pennsbury Township also has the lowest approval ratings for variances, but with all male board members. Pennsbury's board consists of 67% real estate professionals and 9 board members from 1981 - 2001.

Birmingham Township has the most variances approved illegally. The zoning board consists of 50% real estate professionals, but the professions of five (out of 8) board members are known, and there are no attorneys. Whereas, the Tredyffrin Township zoning board has the most attorneys in comparison to the other boards, and the township has the second highest variances approved illegally.

Table 4.6 Zoning Board Characteristics

Township	**Number of Board Members**	**Years on Board**	**Number of Attorneys**	**Number of Differing Professions*/ Number of Unknown Professions**	**Number of Males**
Birmingham	8	1-14	0	5/3	8
East Bradford	7	1-12	2	4/1	6
East Goshen	9	2-13	3	1/4	8
Easttown	7	4-20	3	1/3	5
East Whiteland	15	1-13	3	6/4	15
Pennsbury	9	1-13	1	4/2	9
Tredyffrin	10	3-16	8	0/1	9
Westtown	4	4-20	3	1/1	4

Not Real Estate Professionals

Summary

To capture this information, the following summarizes the comparison of findings for each township to identify connections between variance statistics, socio-economic characteristics of the townships and the zoning board dynamics.

Birmingham Township had eight male zoning board members with none of the board consisting of real-estate professionals and no attorneys, but three members' professions are unknown. The township has an overall variance approval rating of 86% with 14% of the 35 variances illegal. They have the highest median household value of the eight townships and the highest median household income.

East Bradford Township had seven zoning board members with six males and one female. Approximately 29% of the zoning board consists of real-estate professionals with one member's profession unknown. The township has an overall variance approval rating of 84% with no illegal variances. The township has the fifth highest median household value, and the third highest median household income.

East Goshen Township had nine zoning board members with one female. The zoning board consists of approximately 44% real-estate professionals, but four board members' professions are unknown. The overall variance approval rating is 87%, and 7% of the variances are illegal. The township has the sixth highest median household value and the lowest median household income for the eight townships.

Easttown Township had seven zoning board members with two females. The zoning board had 43% real-estate professionals with three board members' professions unknown. Easttown has the second highest median household value and the fourth

highest median household income. The overall approval rating is 72% (the lowest) with 2% variances illegal.

East Whiteland Township had 15 male zoning board members (the largest of the eight townships), and approximately 33% of the board consists of real-estate professionals. Four board members' professions are unknown. The overall variance approval rating is 84% with 5% of variances illegal. The median household value is the lowest with the median household income being the second lowest of the eight townships.

Pennsbury Township had nine male zoning board members. Pennsbury's zoning board consists of 33% real-estate professionals with two member's professions unknown. The overall variance approval rating is the lowest (72%) with 8% of the variances illegal. The median household value is the fourth highest, and the median household income is the second highest of the eight townships.

Tredyffrin Township had 10 zoning board members with one female member. The zoning board is the least diverse professionally - 90% real-estate professionals. One member's profession is unknown while the rest of the members are attorneys except for a construction project manager. The overall variance approval rating is 74% with 13% illegal (second highest). The median household income is the third highest with the six highest median household incomes.

Westtown Township had only four male zoning board members (smallest). All of the members work for law firms, except one individual's profession is unknown. The overall variance approval rating is 77% with no illegal variances. The township has the second lowest median household value and the fifth highest median household income.

Case Studies

Qualitative data is a useful addition to quantitative information. The qualitative data or case studies provide details for three townships: Birmingham, East Goshen and Tredyffrin Townships. This information creates a bigger and easier picture of looking at zoning variances and zoning boards.

Birmingham

In *The Philadelphia Inquirer* issue, August 23, 2001, the commentary points to Birmingham Township for their deed restrictions. Pat Burns writes about his lost right to placing "above ground structures of any kind" in his back yard. Several charges were issued to the Burns for a small retaining wall around their garden, cutting down trees that were diseased and dying, and bringing in fill dirt to their back yard.

This article is just one among many that have been issued about Birmingham Township. Another article in *The Philadelphia Inquirer* on July 2002, "A township with scrutiny, right down to the last leaf," talks about the property values in the township. According to the article, the property values are among the highest in the region, and this is a result of the township being "aesthetically" strict.

> "So laws in this Chester County community say the trees in a yard can't have 'large leaves' or be 'messy,' and that if a one-year-old tree has not grown 'in a manner characteristic of its type,' the Board of Supervisors can order it removed."
>
> "And if you want a swing set for your children, brace for a possible multiyear fight, and thousands of dollars in lawyers' fees" (Wallace-Wells, 2002).

Unknowingly, these residents have uncovered a problem with the township's approval process for zoning variances. The results from this study show that

Birmingham has the most variances approved illegally: 13% of approved residential variances and 16% of approved commercial variances.

Table 4.1 shows the overall approval rating for residential variances as 75% and commercial variances as 95%, which would appear that the zoning board is not as difficult as the commentaries indicate. A more in-depth look at the results shows that residential variances that have an impact on impervious surface are only approved 56% from 1981 – 2001 whereas commercial variances with environmental effects are approved much more frequently (93%). Still, aesthetic variances are approved all of the time for residential and commercial (100%).

Three commercial variances were approved illegally. Interestingly, these three variances accounted for the majority of impervious surface increases in the area from zoning variance approvals (99%). All of the cases were for expansion of the facilities. One of the cases was an inflicted hardship by the owner, and the other two cases did not indicate any hardships.

East Goshen

A February 1998 flier alerts Willistown Residents about East Goshen plans to have Philadelphia Suburban Water Company build a pumping station that would draw water from wells in and around East Goshen and Willistown Township. The water company planned to pump 451,000 gallons per day and export the water to serve other areas. Some of the questions posed by the residents:

> "What environmental impact will this have on Willistown? The company is armed with studies that are four years old. Are these studies still valid? Do they

reflect future impact? The present data does indicate that shallow wells and streams will dry up! Does that include our ponds as well?"

Unfortunately the attendance by Willistown, East Goshen and West Goshen residents did not impact the decisions by the East Goshen zoning board that approved the special exception to the Philadelphia Water Company. Special exceptions also require attention, because these special permits have significant environmental impacts.

In East Goshen, two variances were opposed by residents for completely opposite reasons. Property owners requested subdividing their land and building on a lot that was smaller than the one acre lot requirement. People in the area supported building on smaller lots to promote more homes, but the zoning board denied the variance due to the language presented in the zoning code.

In another variance, this same situation was presented, but in this case residents were opposed to development on smaller lots. The residents were concerned about the effects it would have on their property values. In this case, the resident was approved to subdivide the lot, and have a width slightly smaller than the one acre limit. Both variances were legal, because in the second case the resident exhibited a hardship.

East Goshen is just one example where variances that are denied are a detriment to the environment. Preserving property values and the aesthetic appeal of the area are of a higher value than preserving area of open space.

Tredyffrin Township

Tredyffrin Township is the largest township geographically and demographically. The population and development have been increasing steadily since the 1940's. Tredyffrin provides the most interesting case study, because it has the most development

and the most variances but as well as the most controversy presented in news headlines. Most of this controversy was related to the Chesterbrook development in the early 1980's.

Chesterbrook is a mixed-use development that incorporates residential, commercial, shopping centers and open space within the 865 acres at the southern edge of Valley Forge National Historical Park. This development received a lot of opposition from residents in the late 1970's to early 1980's. "Local residents and Valley Forge park commissioners quickly opposed building on the site, fearing that high-density housing and office space would burden local roads, public services, the park and the area's ecology. There were also aesthetic concerns" (Bernard, 2003:2).

Several files are in the Tredyffrin Township municipal building for variances and special exceptions for this development. Interestingly, a comment by Rob Lee, executive vice president of the Fox Companies (owner of Chesterbrook), as stated by Dave Bernard staff writer of *Daily Local News*, "While Chesterbrook was revolutionary in concept and scale, Lee noted, it was by-the-book in execution, following the township's existing zoning rules on the land. Still, it was born of controversy" (2003:2).

The Open Space Conservancy fought this development for years but to no avail. Their funds for legal battles and other meetings were beyond their capabilities in comparison to the Fox Companies. Time and again the zoning board continued to approve the variances and special exceptions. Unfortunately, the Pennsylvania's Commonwealth Court interceded and blocked further interference from the township's supervisors and clearing the way for development (Bernard, 2003:3). The detailed transcripts for these cases require special attention and research alone.

Detailed transcripts from the zoning board hearing were provided in some cases by Tredyffrin Township. These minutes present the best information, because the interpretation is left open to a third party. In these cases, the zoning board members would imply to the appellant, if a hardship was not evident, to stretch the truth and try to find a hardship that would allow them to approve the variance. Obviously these variances were labeled illegal. This is not the only instance of illegal behavior.

One of the lawyers on the board was also the attorney for the Chesterbrook development. Typically when there is a conflict of interest, the board member is supposed to step down for the hearing. Unfortunately, the information about this conflict of interest was not made available until after all of the variance records were reviewed. Still, throughout the research, I did not identify any cases in Tredyffrin where the zoning board member excused themselves due to a conflict of interest as I have found in other townships.

The case studies provide an inside look at the controversies and relationships that exist in the townships which expand upon the quantification of variance information. Much more information and dialogue can be developed for each of the townships, but should be provided in a document by itself.

Discussion

To address this multitude of information, each hypothesis and question needs to be answered individually. A reiteration of the hypotheses is as follows:

> First, I hypothesize that zoning variances contribute to development more so than the literature represents. Second, the variance effects on the environment represent a portion of the overall environmental effects caused by sprawling

> development. Third, the composition of the zoning board and socio-economic composition of the township causes differences to be identified among the localities examined, so that approvals for specific types of variances as well as overall approval rates and legal decisions will vary.

The literature explored did not indicate how zoning variances contributed to development. The reasons for this can be endless, but in Chester County, Pennsylvania the records were not easily obtainable and accessible to conduct a quick assessment. Table 4.1 indicates that zoning variances do contribute to development by the amount of impervious surface as well as the number of variances associated with new development permits.

Informal discussion with members of some New Jersey planning commissions revealed that applications for zoning variances in association with new development proposals are not condoned. The practice in some of the townships in Chester County may be reconsidered by the county planning commission, but again they do not have the power to control only to guide.

Many townships are concerned more about the aesthetics of the community and keeping with separated and spacious development rather than condensed and smaller-lot development. These cases were discussed briefly in the East Goshen case study. Some variances requested development on smaller lots which would contribute to preservation of open space indirectly. These variances were denied to maintain the aesthetic “appeal” of the neighborhood. Hopefully the application of the *Landscapes* plan developed by the Chester County Planning Commission will help these townships come together and work on preservation of open space and farmland and the downsizing of sprawling development.

The quantification of impervious surface and the number of variances indicating runoff into water bodies was easily obtained by looking at each variance record, but in some cases the amount of impervious surface was not provided. In several instances, the board would request a follow-up survey of how the runoff would affect the nearby waterway, but these surveys were not provided in the file with the request. Therefore, it is unknown whether or not the survey was conducted or if it was never placed in the file.

Originally, one of the goals was to obtain building permit information to determine the number of new building permits approved and quantify the amount of impervious surface for each township. This information was not readily available and would have required extensive reviewing of each building permit record. Although the amount of impervious surface was identified for all the zoning variances as well as how many were associated with new development, "significance" of the amount of impervious surface cannot be determined. Still by way of comparison, some townships had more significant development as a result of variance approvals than others which include Tredyffrin and East Whiteland.

Zoning variances do contribute to the amount of impervious surface or "impervious creep" as stated by Center for Watershed Protection, but in reviewing the cases, special exceptions also impose significant environmental effects. Although special exceptions were not targeted in this research, passing through the records revealed their potential significance.

According to Molotch's Growth Machine theory, there is little to no effectual enforcement of zoning laws in an area controlled by the Growth Machine. Applying this

and other anecdotal comments, this research examined the approval ratings and the legality of approvals for zoning variances in these townships.

The zoning boards for each township exhibited differences in professional diversity, gender diversity, and turnover rates. Although the diversity and turnover rates could not be directly attributed to zoning variance approval ratings as readily seen in economic properties of the townships, the diversity and turnover may have some influence. Information about selection of board, detailed surveying and discussion of board members, evaluation of board process and interplay with environmental commission, etc. need to be researched.

Differences in approval ratings for residential and commercial variances were associated with property values in some of the cases on each end of the "spectrum" (high approval ratings and low property values, low residential approval ratings and high property values). This was the case for three of the four townships with the highest median household value: Birmingham, Easttown and Pennsbury.

The following townships in order of (highest to lowest percentages) approved variances illegally: Birmingham, Tredyffrin, Pennsbury, East Goshen, East Whiteland, and Easttown. Although the illegality of variances is a problem and contributes alone to impervious surface, the way variances are approved excludes important items such as water quality and supply.

The diversity of the board was important in the overall variance approval rating. Pennsbury and Easttown Townships has the most professionally and gender diverse boards, respectively, and the lowest variance approval percentage. Still, the low overall approval rating is due to low approval rating for residential environmental variances. The

townships with the most illegal variances included Tredyffrin and Birmingham Townships. Tredyffrin township has the least diverse board professionally – all attorneys except for two individuals.

All of the townships had poor turnover rates and most of the board members lived in close proximity to each other. Location of residency appeared to not have an influence on the diversity or outcome of variance approvals.

Overall, the first two hypotheses are verified by the findings. The last hypothesis as it relates to the Growth Machine is not definitive, but the results do indicate a prevalence of the Growth Machine in Birmingham, Easttown, Pennsbury and Tredyffrin Townships due to residential property values and high approval ratings for commercial variances at 93%, 100%, 100% and 74%, respectively. East Whiteland, East Bradford, and East Goshen have high approval ratings, but these townships except for East Whiteland have the least impervious surface totals from 1981 – 2001, mostly residential variances, high approval ratings for residential environmental variances and lower median household values than the four townships of Birmingham, Easttown, Pennsbury and Tredyffrin. Westtown township has a lower approval rating, but only four zoning board members for twenty years. In this case, these members may be more concerned about the environmental value of the township. It has the second lowest median household value and the majority of variances approved are for environmental residential variances. It would appear that the valuation of the township does influence the zoning board's decisions more so than the professional diversity of the zoning board, but more invasive studies of the connection of these board members to the economic outcome of the township is important.

CHAPTER 5: CONCLUSIONS

Overview

This research aimed to address how zoning variances contribute to sprawling development. To reach this goal several questions were asked: 1) how do zoning variances affect the amount of sprawling development; 2) how do approvals affect the natural environment, and 3) does the diversity of the zoning board members and socio-economic composition of the township affect the approval rating. These questions looked at the structure of zoning variance decision-making and its resultant effects. The process starts at the zoning hearing board where individuals from the township with varying backgrounds come together to make decisions on matters such as zoning variances. These decisions may have an affect on a new development proposal or just on redevelopment of a small area in a residential or commercial section. Once these decisions take place and the development occurs, the environment is affected by the increase in impervious surface, increase in runoff, a decrease in groundwater recharge, an increase in pollutants into nearby waterways, etc.

The hypotheses included: 1) that variances contribute to increased development with deleterious effects on the environment; 2) in some cases the variance decisions do not comply with the PAMPC, and 3) that the zoning board dynamics and socio-economic composition of the townships affected the variance decision-making. The research has shown that variances do contribute to increased development with deleterious effects on the environment, but the significance of this effect has yet to be quantified. Illegal decisions were identified as well for several townships. In addition, the zoning board dynamics and the socio-economic composition of the township correlates with variance

decision-making in several townships. The Growth Machine framework was applied in this last hypothesis, but further research is needed to determine definitely if this dynamic is in process. Signs of the Growth Machine are evident in Birmingham, Easttown, Pennsbury and Tredyffrin.

Although the answering of these questions and the proving of these hypotheses was the end product of this research, additional inquiry and correlation back to the literature is necessary. The following dialogue provides the theoretical and practical implications of this research with a listing of future research needs and a summary of my understanding of the zoning and sprawl process.

Theoretical Implications

"Watershed science seeks to understand and explain the structure and function of complex ecosystems, and thus it is inherently a multidisciplinary effort that integrates biological, chemical, physical and social sciences" (National Research Council, 1999:136). This research has tried to integrate the multidisciplinary aspects of the problem with sprawling development and zoning variances. Every type of problem whether it is environmental or social is not isolated and requires multiple views. This research has shown the chain of events that start out with a social network, zoning board, influences the decisions, zoning variances, which then cause an impact on the environment.

The literature provides anecdotal comments on the corruption of zoning boards and their granting of zoning variances as well as the operation of the Growth Machine in urbanized areas. Although there has been some reference to empirical findings, this is

still minimal. This research has supported the following claims as made by Harvey Molotch, John Logan, Jerold Kayden, Richard Babcock and others.

In 1966, Richard Babcock uncovered what he called the *Zoning Game*, where real estate professionals, land economists, lawyers and judges use zoning to maximize property values by prohibiting the construction of nuisances. In other words, these nuisances would detract from the value of property (116 - 117). Although not empirically provided by Babcock in his time, this research has uncovered how property values influences the variance decision-making for several townships: Birmingham, Easttown, and Pennsbury. Toll (1969) also elaborates on this process by stating that zoning boards were holding steadfast to low-density suburbs which added to the metropolitan characteristic of the time.

Haar and Kayden (1989) expand upon how zoning variances were being used as "marketable commodities" in the 1930's through to the 1980's where zoning is defined by Logan and Molotch (1987) as being without integrity and compromising under entrepreneurial pressures. This is all defined under the Growth Machine theory as developed by Harvey Molotch. The findings have shown that the Growth Machine is most prevalent in Birmingham, Easttown, Pennsbury, and Tredyffrin. The elements of the Growth Machine investigated in this study included: 1) approval ratings of zoning variances, 2) diversity of board and the presence of local elites/professionals affected by land-use decisions, and 3) socio-economic characteristics of the township.

Specific reference is made by Molotch (1976) that local businessmen, particularly property owners and investors, lawyers, syndicators and realtors are involved in the Growth Machine process which has been verified by the participation on zoning boards.

In addition, Logan and Molotch (1987) point to zoning placing too large a burden on development so that ordinances have been quickly changed and/or variances given which is also evident in the variance approval ratings in some townships.

Research findings are the first empirical evidence for many of these comments in the literature. Although these individuals have gleaned from conversations and interaction in the zoning and planning process, they did not have empirical evidence to confirm. Additionally, literature research provides very little information directly relating zoning variances and zoning boards to the Growth Machine. This work provides a robust investigation on this issue and attempts to tie it back to the bigger problem of sprawling development.

Although this study touches on the Growth Machine theory and zoning boards for the first time, additional investigation is needed to thoroughly evaluate the Growth Machine process in these townships. Additional findings should include 1) the process of promoting open positions on the zoning board, 2) review of applicants, 3) selection process by township supervisors or township manager, 4) full interviews with each board member to learn about their background and understanding of the process, especially their understanding of environmental conditions, 5) influence by planning commission, local and county, or other boards on decisions, 6) interview with individuals/entities applying for variances evaluating their relationships, if any, with the board, and 7) review of municipal and state regulations/policies for change.

Smith (1983) relates how the failure of zoning causes poor land-use planning and development: "The greatest single cause for the failure of zoning to effectively guide land-use development so as to result in the betterment of our urban form has been the

misuse of the variance technique." This is one of the very few citations that link how zoning variances may contribute to land-use development. This single comment along with the Growth Machine theory spurred the research due to the lack of empirical evidence and significant literature devoted to the topic. The findings indicate how zoning variances are applied for with new development proposals in addition these variances contribute to impervious surface and the urbanization of rural areas. Rather than the zoning boards stopping the process, they enhance the process of development that infringes on the regulations set forth in the township.

Runoff is listed by the EPA as the nation's largest source of water quality problems, and accounts for 40% of US rivers, lakes and estuaries failure to meet water quality standards (Gillham, 2002:115). Science helps us to identify the effects of our actions on the environment, but without knowing the causes of these actions, the problem will never be resolved. This study has shown that zoning variance approvals sometimes allow new development to occur and also contributes to impervious surface or "impervious creep" via renovations or additions to existing properties. Direct mention is also made of runoff potential into nearby waterways, but still there is no evidence of a study that verifies the environmental effects are negligent.

What is often forgotten is that the individual variances or building permits, etc. do not necessarily cause significant damage, but continued allowance of all these individual variances and permits in aggregate do contribute significantly to environmental damage. This research shows that an interdisciplinary team is needed to assess development, but future research is needed to show how these interdisciplinary members or boards can work together. More importantly the reason why they do not work together is also

required. This information would be an important tool for watershed organizations, municipalities and commissions.

The research contributes to the advancement of the literature, but it also contributes to the practical use by local citizens and municipalities. Several of the practical implications include record-keeping of zoning variances and other decisions made by local boards, following zoning board selection and turnover, comparison of environmental effects to *Landscapes* plan developed by the county, plus many more to be discussed.

Practical Implications

The purpose of this type of dissertation structure was to understand the bigger picture in evaluating environmental damages and environmental policies. As stated much earlier the natural system is affected by the social and political system. This research focused on the social and political system – zoning boards and how their actions created a trickle down effect to the natural system – impervious surface and its effects on the environment. Unfortunately, the strength of this research was the second step (still the most important step) of this three step process: 1) zoning boards, 2) zoning variance decisions, and 3) environmental effects. The zoning variance decisions and other related variables were unavailable and required a significant portion of time to research. Again this is the most researched portion of my dissertation followed by the environmental effects.

Zoning variances, albeit somewhat less important than building permits, do play a big part in how development occurs, and the structure of maintaining the information is indicative of the sophistication of the townships. In other words, the townships lack

significant structure and organization in keeping their records. Based on this finding, the townships need to integrate a process whereby they know and review the number of variances received, how many are approved, etc. as I have demonstrated in my findings. This record-keeping is also important for building permit information, zoning board members and backgrounds plus other decisions made at the local level.

Other decisions made by the zoning board include special exceptions (also known as special use or conditional use), which is a change in use or an allowed use in a designated district such as residential, commercial or industrial (Chandler and Dale, 2001:17). These special exceptions can be granted for cases such as re-channeling streams, paving over portions of a watershed, etc. These cases need to be further investigated for their legality as well as direct environmental effects. Typically special exceptions are provided with new development proposals and thus would have a great impact on impervious surface and direct water quality/quantity.

The county planning commission does not require record-keeping of all building permits from each of the townships nor zoning variances and special exceptions. They used to keep building permit information in the early 1980's but decided to stop collecting this information. No reason was given, but obviously the importance of this type of information is not seen. This research clearly demonstrates why this information is necessary in guiding land use development. The county planning commission can create useful documents such as the *Landscape* plan that would incorporate this information. They are acting blindly in determining what is best for the county when they do not know what exists with respect to zoning decisions.

Impervious surface total or percentage of impervious surface of each township and the county is not easily available from any organization that I have contacted. The organization that should keep this information is the county planning commission. Possibly a non-profit organization or university/college can collect this information partially on the research I have done in conjunction with future research. This information can help prevent watershed degradation in some townships, possibly restore land in other townships where development is prevalent, guide zoning changes and planning around environmentally sensitive and critical areas of the watershed.

This future research need can be accomplished with a multidisciplinary team of students or professionals to also investigate water quality/quantity effects for each development in select townships. One example of this type of work is being conducted by Rob Ryan from Drexel University who is a research assistant on this project for Valley Creek Watershed. Multidisciplinary watershed research is so important as stated by the National Research Council. Again, science is integral to uncovering the environmental damages, but much more important is why the damage occurred and how to stop the source of the problem.

One way to prevent these problems from occurring is to incorporate more like-minded individuals on decision-making boards like the zoning board. As seen from this research, diversity is lacking on the zoning boards which prevents diverse decision-making and understanding of zoning variance decisions especially as it relates to the environment. Although direct correlation could not be identified, indirectly the diversity or lack thereof has an effect. Other issues may be important as well such as human health, societal function, etc. NGO's can align themselves with individuals who would

be willing to participate on these boards and would have an inside hand participating in the control of the landscape.

By aligning individuals of professional and economic diversity on the boards, the hope is that better decisions are made. These decisions not only include denying variance permits, but also include changing the zoning ordinance. In cases as described beforehand, zoning variances for building on smaller lots were denied. In this case where development is becoming prevalent in townships, smaller lots may help to save open space. Many townships across the US are changing what they call "outdated" zoning to help reduce sprawling development. Below are some of the headlines:

- "Archaic zoning laws lock cities into growth patterns that hardly anybody wants. Changing the rules can help set them free" (Swope, 2003).
- "Planners seek to revamp 'outdated' zoning legislation" (Flint, 2002).
- "New Zoning Halves Future Housing" (Brandt, 2004).

Zoning boards are not only fundamental in making decisions about zoning variances and special exceptions, but they are also fundamental in identifying when zoning ordinances need to be changed. These headlines exhibit how our lifestyle in society is changing and to deal with these changes, regulations need to be changed.

Conclusion

When beginning this research on sprawling development in Valley Creek Watershed in Chester County, I did not see the importance of development on global environmental issues such as global warming. I believe that global warming is the highest threat to civilization and the natural environment. As the research progressed, I began to learn the implications of land development on many issues such as water quality and quantity, ecology, open space, energy use and ultimately global warming. How we shape our landscape is so important to our livelihood. I have found that sprawl impacts our health, family life, relationships, and our total dynamics as a society. Although this research did not focus on these aspects of sprawl, it is important to recognize that every action we take has multiple effects. This is the most important reason why this research started out in a multidisciplinary framework and then expounded upon this idea to include sociology, policy and the environment.

As an outsider looking in on the zoning board decision-making process, I see a different picture than the zoning board members may see. They may not understand the over-arching impact of their decisions, and possibly if they are just made to understand the process can be better. Still for some individuals they may be mired in corruption and offering incentives for the benefit of friends or themselves. I believe the benefit of the doubt should be given to each of the board members and the process and the findings of the report should be explained to them. Knowledge is so important to the development of individuals and our society. I think sometimes too little importance is placed on this basic concept. Knowledge in this field especially appears to be lacking, and I think

zoning board members, township supervisors, planning commissions, non-governmental organizations, and citizens can benefit.

Sprawling development is a combination of decisions and efforts at every level of government control and citizen decisions. Al Gore (1992) in his book *Earth in the Balance* attributes the piling of sand to how social movements, specifically environmental movements are created. Each grain of sand piles onto another until there is one grain of sand that causes the pile at its critical moment to cascade and virtually change. In essence, the changes to sprawling development require incremental minute changes as needed at every level of decision-making such as zoning boards and their decision on zoning variances. Zoning variances and zoning board decision-making is rarely studied and rarely classified as important in the problem of sprawling development. I have shown that zoning variances can contribute to new development and does contribute to impervious surface. The zoning board is the system by which these decisions are made and thus the make-up of the board is essential to wise and legal decisions.

Actually, zoning variance and the process underlying high approval ratings is indicative of the bigger problem with zoning policy. Zoning isolates uses and prevents multi-use/mixed communities which create a “community”. The zoning system is also isolated in its structure and thought so that environmental effects, social effects and hereon are not considered in decision-making. The evaluation of zoning variances highlighted this problem. The criteria for decision-making does not take into account important factors such as how this approval causes effects on water quality, water supply and other environmental and public health factors. As well, variances are needed for new

development which has much bigger consequences. The structure of thinking and action are very isolated. The system has created this isolated system which needs to be changed. This problem is a combined result of the structure of the zoning policy and the dynamics of the zoning board.

Those that apply for the zoning board are dependent upon the socio-economic composition of the townships as well as the publicity of position. The townships supervisors or manager ultimately makes the decision for selection and this decision needs to be a thoughtful process. The zoning board members play a very important role in land-use development. A role not consistently thought of as important. As shown this process plays a part in sprawling development.

Still, the Growth Machine, otherwise known as economic incentives, may be a larger influence than this research has shown. Further research is imperative to determine how society can change the path of land consumption in addition to other environmental problems that take the wayside for monetary values. Unfortunately, our society is consumed with money, and we need to realize there is a fine balance between personal wants and societal benefits. We are all impacted by what occurs in our natural and social environment, and we are all contributors.

Sprawling development occurs as a result of poor planning and decision-making and personal wants. Acres of land are being developed that are not close to existing infrastructure, that require dependency on cars, that take away land for nature and human recreation, that are poorly developed that watersheds are being destroyed, and the list can continue for pages. What is being done to prevent this type of development? Research is being done on the environmental effects. In this case, the county planning commission

developed a plan for townships to follow, but yet they do not know the details of decision-making at every level. They do not know the percentage of impervious surface in each township.

This story represents a small example of what is occurring across the US, especially on the East Coast. This example needs to be applied in every locality, every county and then looked at by each state. If we are to preserve the diversity of landscapes and animal life and plant life and microscopic life, as well as prevent global environmental problems, we need to work together. We need to know the pyramid of decisions made at the local level through to the federal level, because these decisions are a chain of events that work from the bottom – up and from the top-down. It is a dynamic system that requires knowledge of the triggers to develop the solutions.

Chester County township citizens, local officials, NGO's, and county officials need to take this information and apply the process of record-keeping, data analysis, and understand how decisions are made by the zoning boards and change how the zoning board is composed and thus change the effects on the environment. They also take this process and apply it to the planning commission and the environmental advisory councils and integrate their processes so they all work together.

Recommendation to the Governor and the State Planning Commission in Pennsylvania would include revising the outdated zoning practices in the state. This would require changing the PA Municipal Planning Code to incorporate mandatory multi-use zoning and a way to monitor local planning actions most likely by the county planning commission. The county planning commission should collect information from the townships such as number of building permits received, how many are approved, the

amount of impervious surface associated with each approved permit, number of zoning variances, special exceptions, and zoning ordinance changes as well as number approved and impervious surface amounts. The commission should also monitor how this approval affects the watersheds in the region.

Development predominantly occurs in undeveloped, open space, because it is easier. It should be mandatory that development occurs first where infrastructure already exists or at least a large percentage should occur in these areas. This would require maintaining an adequate collection of information at the municipality/township and county levels.

The Brookings Report created for Pennsylvania called, *Back to Prosperity*, identifies the problems in the state and possible solutions. Unfortunately, the call to action does not include a state-level initiative of which I have proposed. The state has been working for years to correct the problems of planning especially related to zoning. I have read several papers that state some of the zoning practices are a problem. These papers stem back to 1960's. The time for research is done. The time for action was yesterday.

Local entities (municipalities) rely on local property taxes for revenue, so they are in a process that cannot accept anything other than development, development that will make money. This process needs to be revised so that revenue is not the only priority. Incentives for clustering, water quality and supply, and other social and environmental measures should be implemented. Some examples exist across the US that hopefully can be adapted.

The ultimate solution would be a social movement that would change the priorities of life for every individual. We have evolved from a time when sustaining life was the highest priority, to discovering life, to conquering life, and now unfortunately we are trying to create life. When will the time come, when the average person can say they are happy with what they have? Unfortunately, we are all victims of a consumptive nature, and maybe some day we can experience a change. Until then we need to be governed, and right now to conquer sprawling development we need the state to take charge.

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Appendix A: Tables

Table A.1 Municipal Building Locations for Each Township

TOWNSHIP	MUNICIPAL BUILDING ADDRESS	WEBSITE
Birmingham	1040 W. Street Road West Chester, PA 19382	No website
East Bradford	666 Copeland School Road West Chester, PA 19380	www.eastbradford.org
East Goshen	1580 Paoli Pike West Chester, PA 19380	www.eastgoshen.org
Easttown	566 Beaumont Road Devon, PA 19333	www.easttown.org
East Whiteland	209 Conestoga Road Frazer, PA 19355	www.eastwhiteland.org
Pennsbury	702 Baltimore Pike Chaddsford, PA 19317	www.pennsbury.pa.us
Tredyffrin	1100 Duportail Road Berwyn, PA 19312-1079	www.tredyffrin.org
Westtown	1039 Wilmington Pike West Chester, PA 19382	www.westtown.org

Table A.2 Township Population 1980 – 2000

Population	**1980**	**1990**	**2000**
Birmingham	1584	2636	4221
East Bradford	3219	6440	9405
East Goshen	10021	15138	16824
Easttown	9064	9570	10270
East Whiteland	8468	8398	9333
Pennsbury	2604	3326	3500
Tredyffrin	23019	29028	29062
Westtown	6774	9937	10352

Table A.3 Total Housing Units in Township 1980 – 2000

Housing Units	**1980**	**1990**	**2000**
Birmingham	492	886	1413
East Bradford	1108	2267	3150
East Goshen	3945	6535	7496
Easttown	2937	3491	3862
East Whiteland	2732	3001	3460
Pennsbury	928	1141	1426
Tredyffrin	8845	11924	12551
Westtown	2028	3279	3765

Table A.4 2000 Township Median Household Income and Household Value

2000	**Median Household Income**	**Median Household Value**
Birmingham	$ 132,620	$335,900
East Bradford	$ 100,732	$253,700
East Goshen	$ 64,777	$241,600
Easttown	$ 95,548	$316,100
East Whiteland	$ 69,500	$184,400
Pennsbury	$ 106,304	$269,200
Tredyffrin	$ 82,258	$269,800
Westtown	$ 85,049	$223,000

Table A.5 Birmingham Township Zoning Board Members

Birmingham	**Years Served**	**Total Years**	**Profession**	**Residence**	**Gender**
Board Member 1	1983 - 1997	14	Research Chemist	Waley Road	M
Board Member 2	1985 - 1997	12	unknown	Radley Run	M
Board Member 3	1986 - 2000	14	not attorney	Britons Bridge	M
Board Member 4	1983 - 1986	3	unknown	Meetinghouse Road	M
Board Member 5	1983 - 1984	1	unknown	Radley Run	M
Board Member 6	1999 - 2001	2	Owner - radio station	Meetinghouse Road	M
Board Member 7	1999 - 2001	2	Peco Energy	Radley Run	M
Board Member 8	1999 - 2001	2	Dentist	Spring Meadows	M

Table A.6 East Bradford Zoning Board Members

East Bradford	Years Served	Total Years	Profession	Residence	Gender
Board Member 1	1989 - 2001	12	Medical Doctor	West Chester	M
Board Member 2	1989 - 1990	1	Businessman	West Chester	M
Board Member 3	1989 - 2001	12	Lawyer	West Chester	M
Board Member 4	1994- 1996	2	Instructor/Educator	West Chester	M
Board Member 5	2001	1	College Professor	West Chester	M
Board Member 6	1998 - 1999	1	Lawyer	West Chester	F
Board Member 7	1991	1	Unknown	West Chester	M

Table A.7 East Goshen Zoning Board Members

East Goshen	Years Served	Total Years	Profession	Residence	Gender
Board Member 1	1982 - 1995	13	food brokerage	unknown	M
Board Member 2	1987 - 1996	9	unknown	unknown	M
Board Member 3	1993 - 1995	2	unknown	unknown	M
Board Member 4	1981 - 1993	12	unknown	unknown	M
Board Member 5	1995 - 1998	3	attorney	unknown	M
Board Member 6	1997 - 2001	4	attorney	unknown	M
Board Member 7	1997 - 2001	4	law firm	unknown	F
Board Member 8	1999 - 2001	2	retired	unknown	M
Board Member 9	1981 - 1983	2	developer	unknown	M

Table A.8 Easttown Zoning Board Members

Easttown	Years Served	Total Years	Profession	Residence	Gender
Board Member 1	1981 - 1990	9	unknown	unknown	M
Board Member 2	1981 - 2001	20	attorney	unknown	M
Board Member 3	1981 - 1990	9	unknown	unknown	F
Board Member 4	1986 - 2001	15	retired	unknown	F
Board Member 5	1990 - 2001	11	ad agency	unknown	M
Board Member 6	1997 - 2001	4	attorney	unknown	M
Board Member 7	1987 - 2001	14	attorney	unknown	M

Table A.9 East Whiteland Zoning Board Members

East Whiteland	Years Served	Total Years	Profession	Residence	Gender
Board Member 1	1985 - 1994	9	Reverend	unknown	M
Board Member 2	1985 - 1989	4	Attorney	unknown	M
Board Member 3	1985 - 1987	2	Business Administrator	unknown	M
Board Member 4	1981 - 1987	6	Engineer	unknown	M
Board Member 5	1985 - 1987	2	Unknown	unknown	M
Board Member 6	1981 - 1984	3	Unknown	unknown	M
Board Member 7	1981 - 1984	3	Unknown	unknown	M
Board Member 8	1981 - 1984	3	Unknown	unknown	M
Board Member 9	1988 - 2001	13	Securities Broker	unknown	M
Board Member 10	1990 - 1994	4	Corporate Administrator	unknown	M
Board Member 11	1990 - 1994	4	Attorney	unknown	M
Board Member 12	1992 - 1999	7	Corporate Administrator	unknown	M
Board Member 13	2000 - 2001	1	Health Care Project Manager	unknown	M
Board Member 14	2000 - 2001	1	Attorney	unknown	M
Board Member 15	1995 - 1999	4	Real Estate Broker	unknown	M

Table A.10 Pennsbury Zoning Board Members

Pennsbury	Years Served	Total Years	Profession	Residence	Gender
Board Member 1	1981 - 1985	4	Business Owner	Chaddsford	M
Board Member 2	1981 - 1994	13	Dupont Employee	Brittany	M
Board Member 3	1981 - 1991	10	Accountant	Parkerstown	M
Board Member 4	1990 - 2000	10	Vice President	Ponds Edge	M
Board Member 5	1993 - 2001	8	Attorney	Range Tree	M
Board Member 6	1990 - 2000	10	Retired - Scott Paper Company	Chaddsford	M
Board Member 7	1981 - 1984	3	Unknown	Hickory Hill	M
Board Member 8	1998 - 2001	3	Architect	Fairwell Road	M
Board Member 9	2001	1	Planning Manager	Twin Turn Lane	M

Table A.11 Tredyffrin Zoning Board Members

Tredyffrin	Years Served	Total Years	Profession	Residence	Gender
Board Member 1	1981 - 1997	16	Attorney	unknown	M
Board Member 2	1981 - 1986	5	Attorney	unknown	M
Board Member 3	1981 - 1986	5	Attorney	unknown	M
Board Member 4	1987 - 1997	10	Construction Project Manager	unknown	M
Board Member 5	1987 - 1997	10	Attorney	unknown	M
Board Member 6	1992 - 1995	3	Attorney	unknown	M
Board Member 7	1992 - 2001	9	Attorney	unknown	F
Board Member 8	1992 - 2001	9	Attorney	unknown	M
Board Member 9	1998 - 2001	3	Attorney	unknown	M
Board Member 10	1998 - 2001	3	unknown	unknown	M

Table A.12 Westtown Zoning Board Members

Westtown	Years Served	Total Years	Profession	Residence	Gender
Board Member 1	1981 - 2001	20	Attorney	West Chester	M
Board Member 2	1986 - 2001	15	unknown	West Chester	M
Board Member 3	1981 - 2001	20	Attorney	West Chester	M
Board Member 4	1981 - 1985	4	Clerk	West Chester	M

Appendix B: Figures

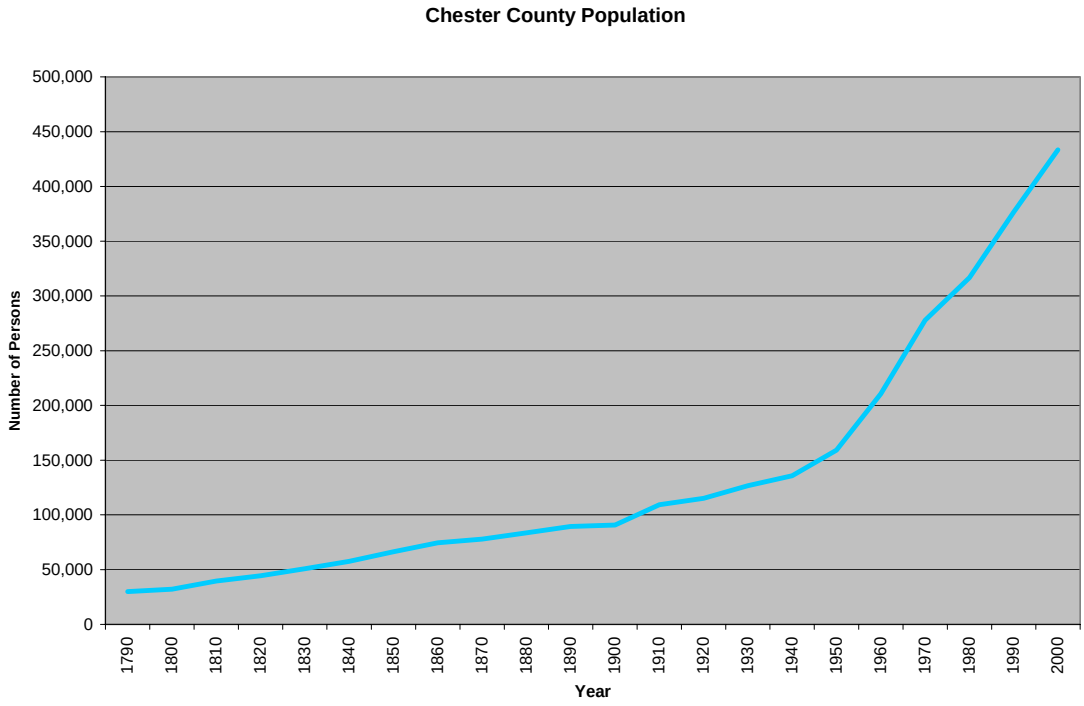

Figure B.1 Chester County Population 1790 – 2000

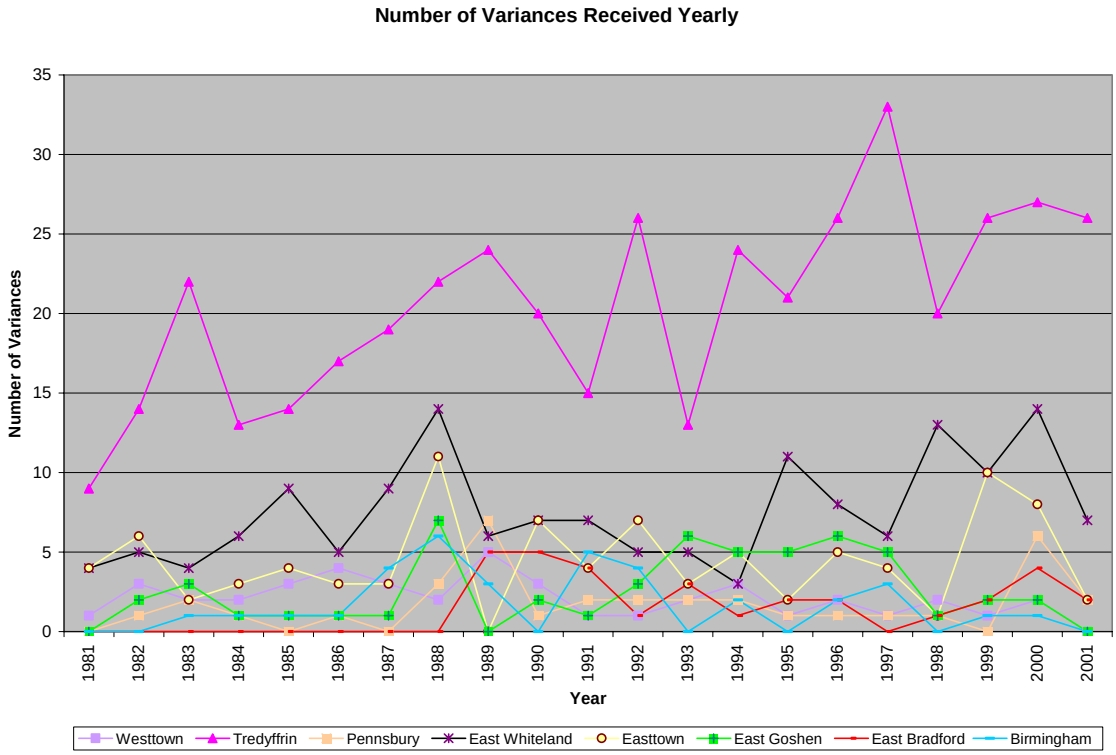

Figure B.2 Number of Variances Received Yearly Per Township 1981 – 2001

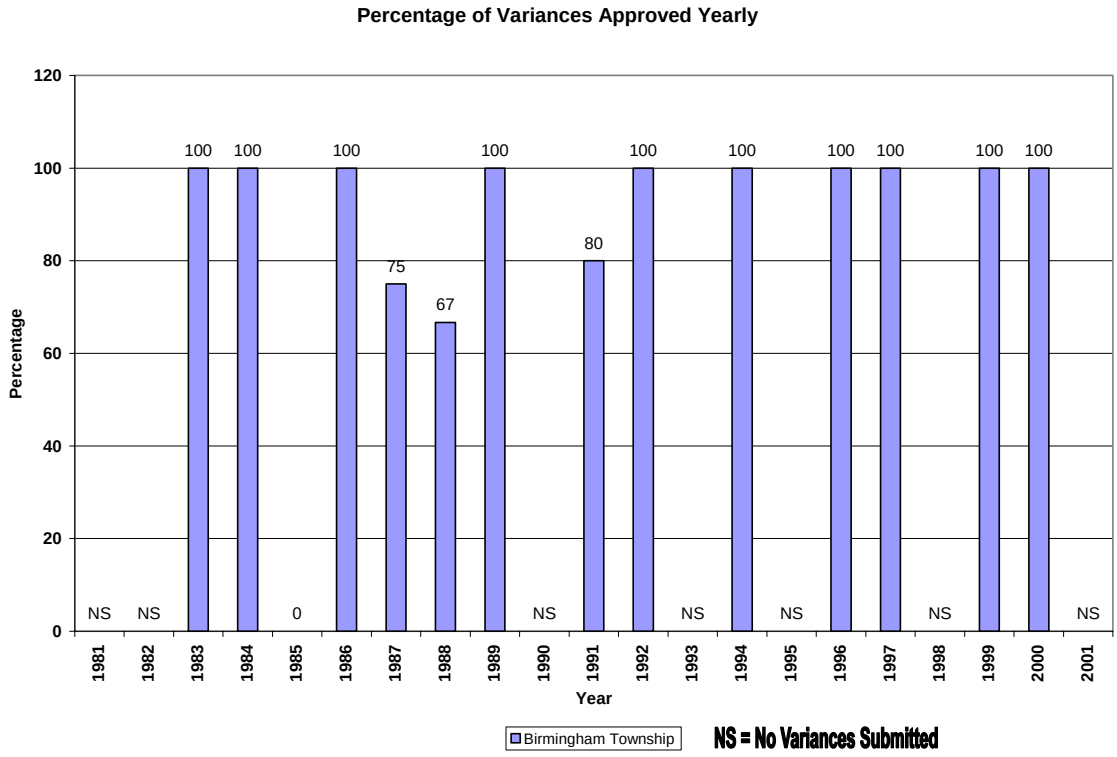

Figure B.3 Birmingham Township

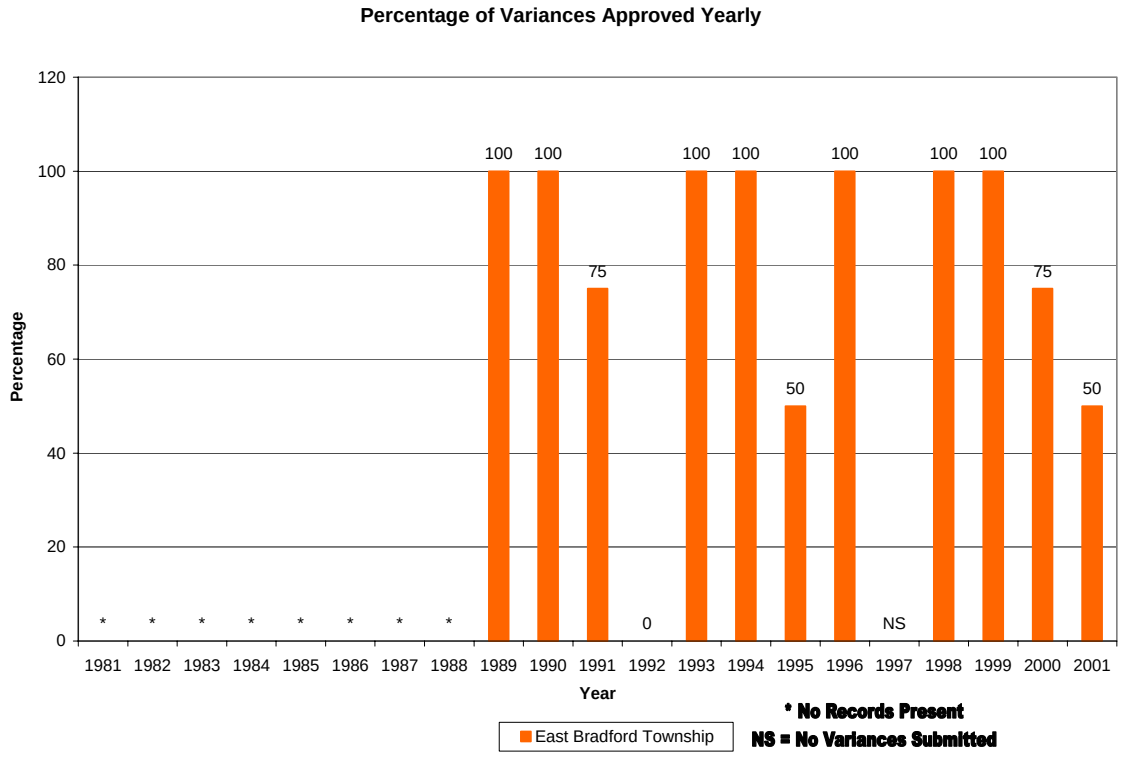

Figure B.4 East Bradford Township

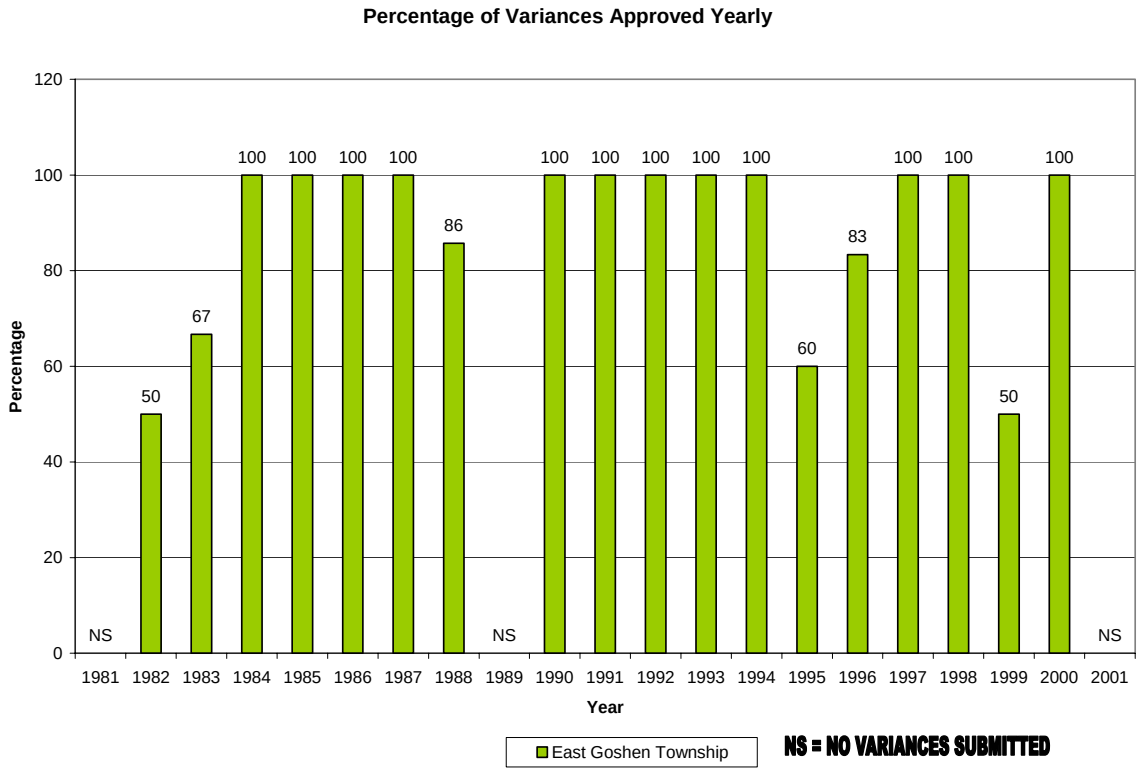

Figure B.5 East Goshen Township

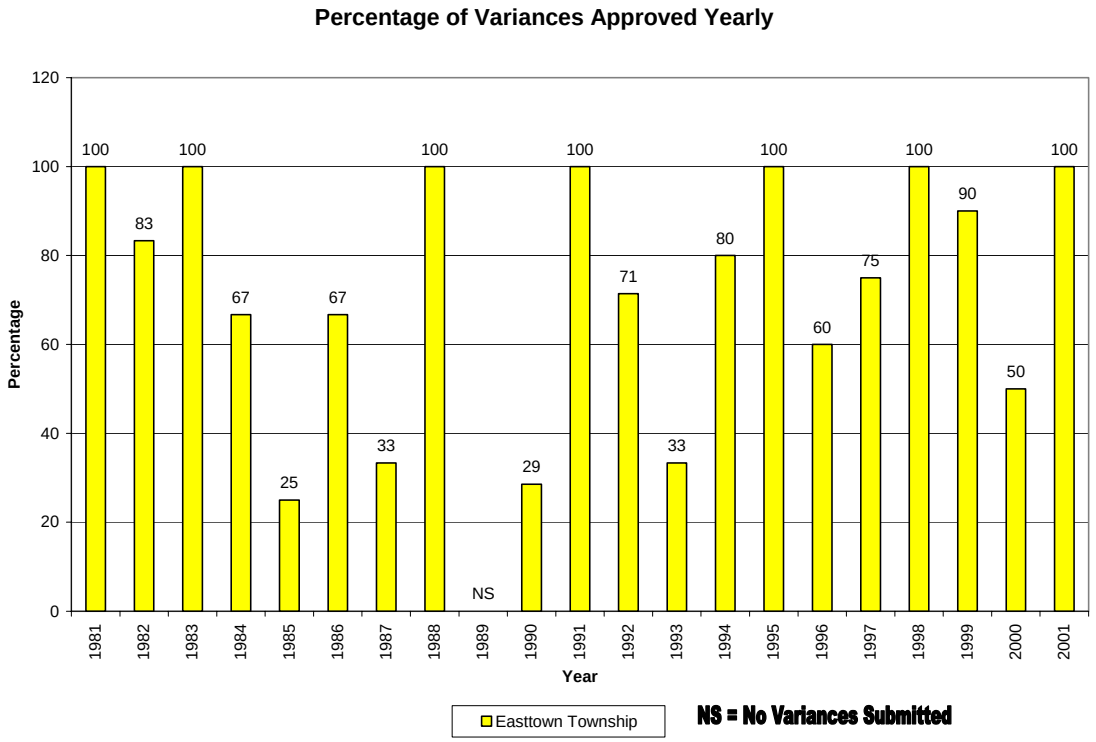

Figure B.6 Easttown Township

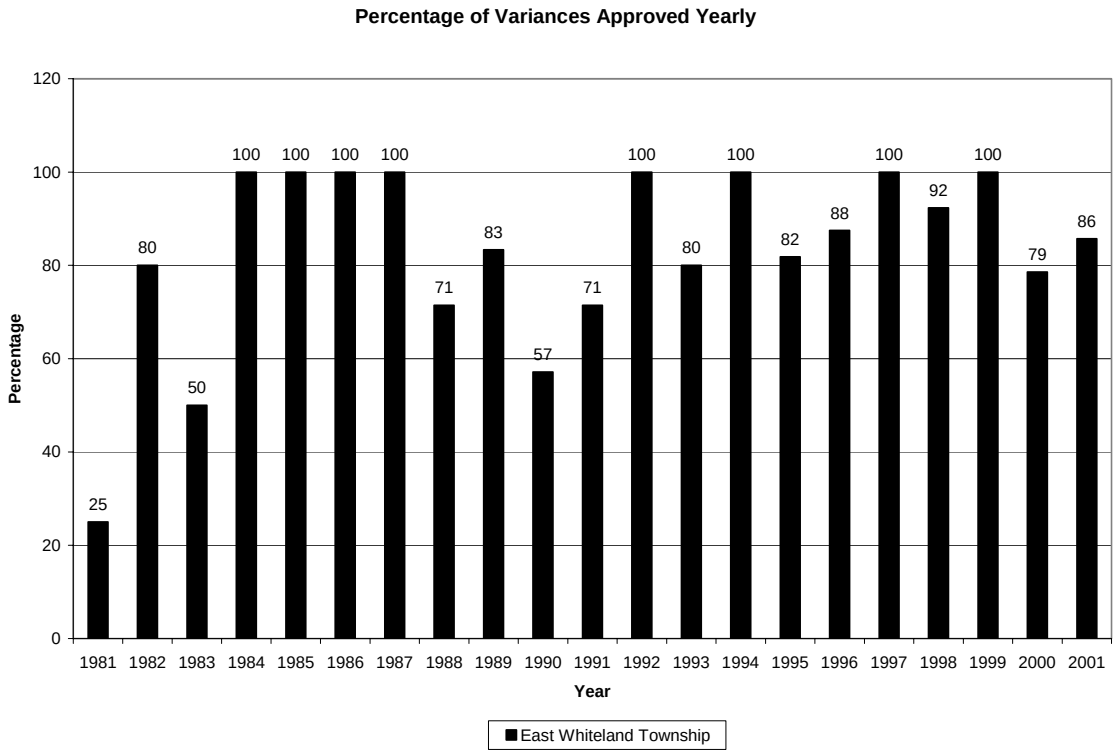

Figure B.7 East Whiteland Township

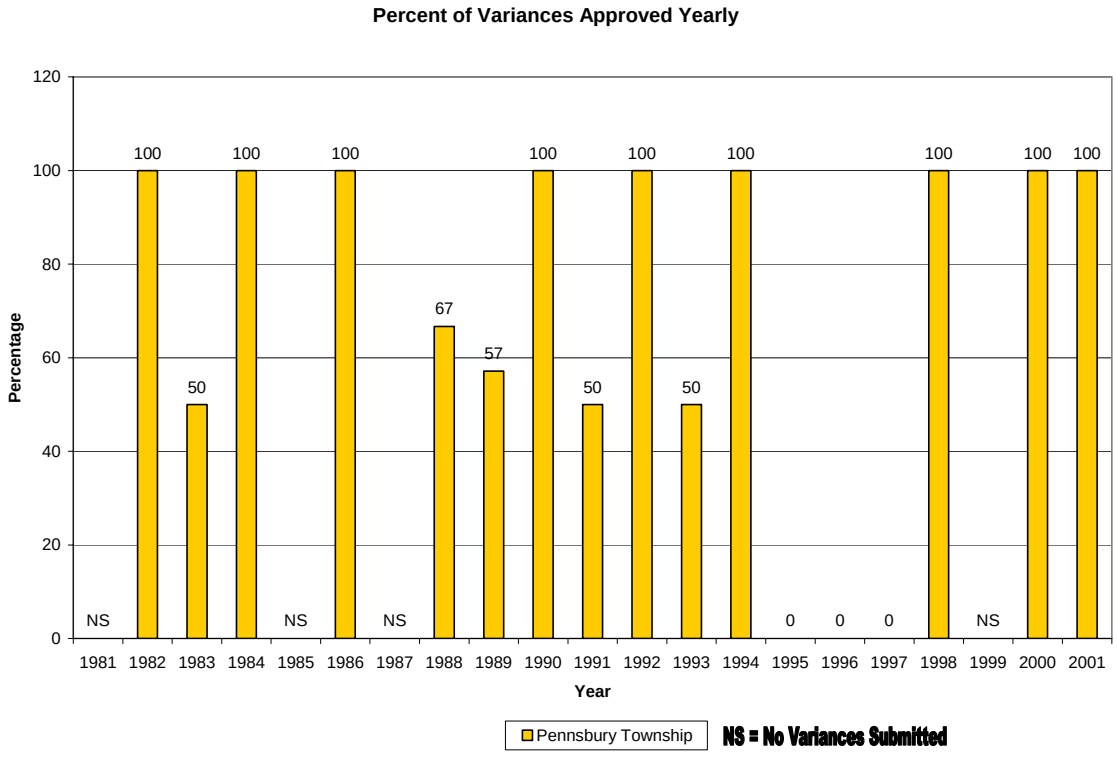

Figure B.8 Pennsbury Township

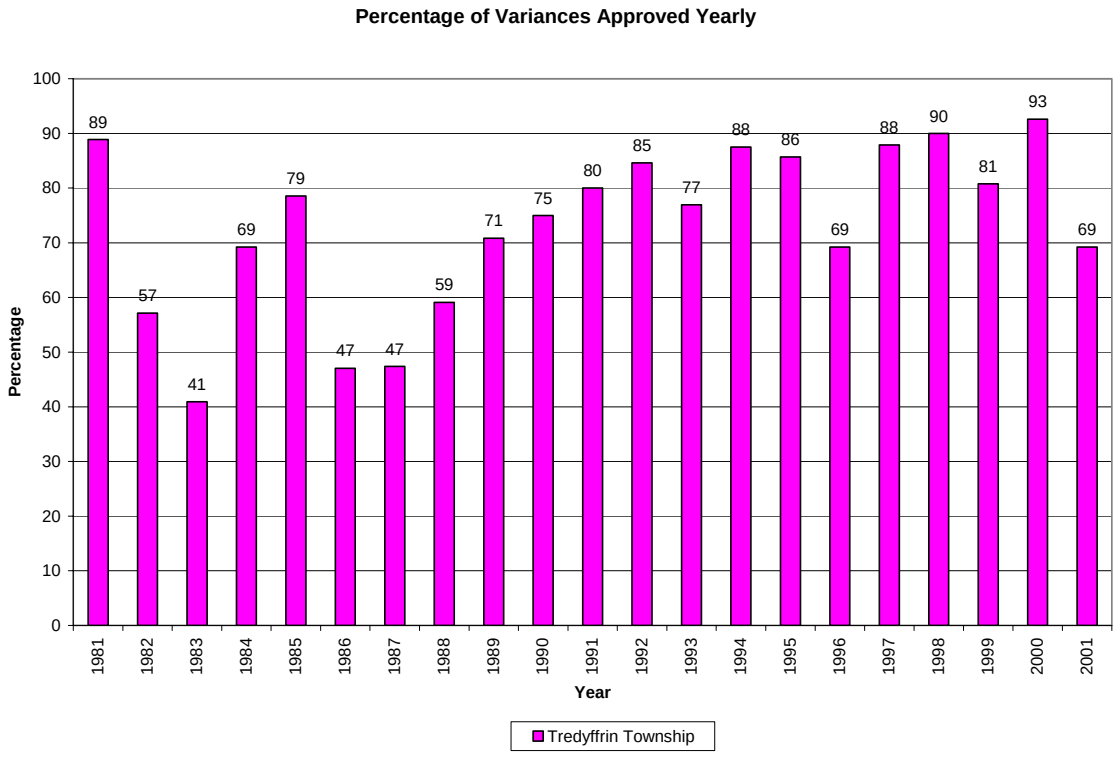

Figure B.9 Tredyffrin Township

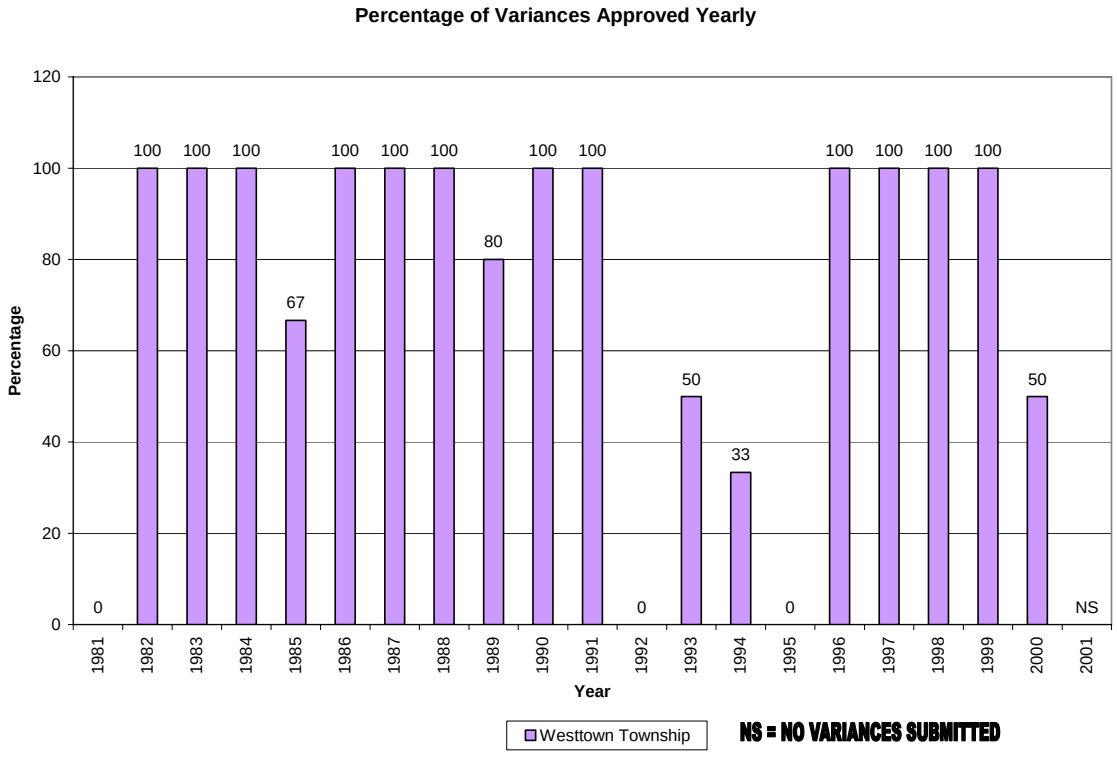

Figure B.10 Westtown Township

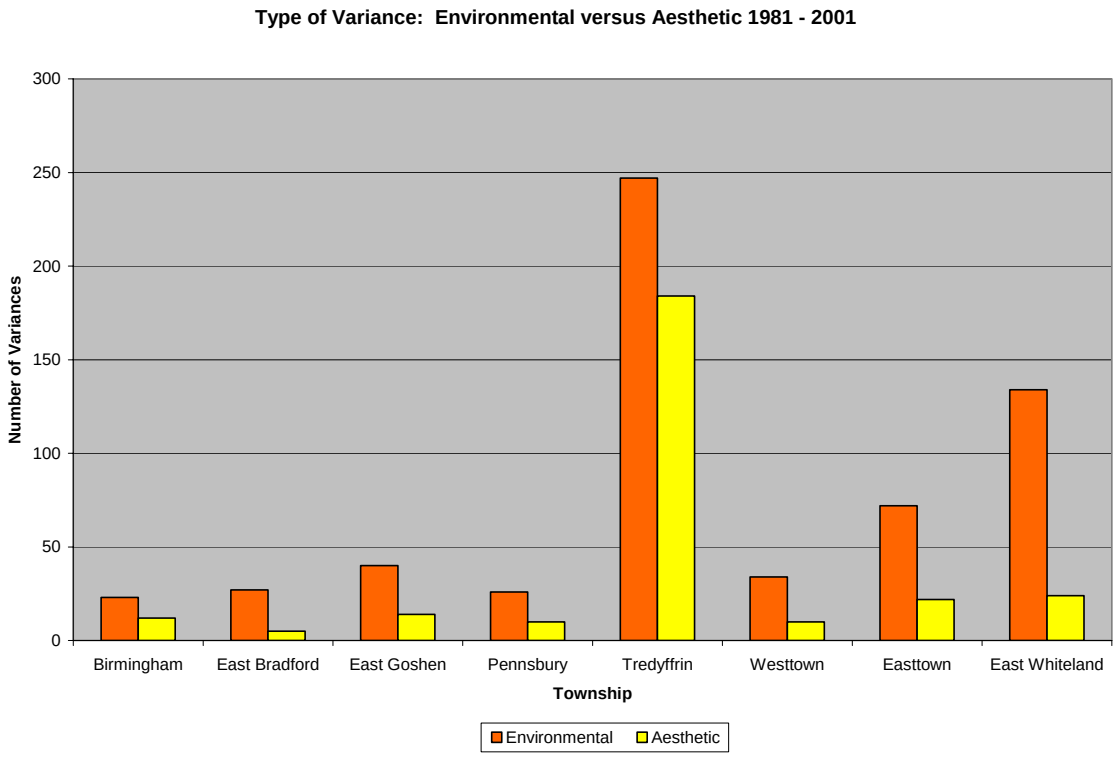

Figure B.11 Number of Environmental and Aesthetic Variances 1981 – 2001

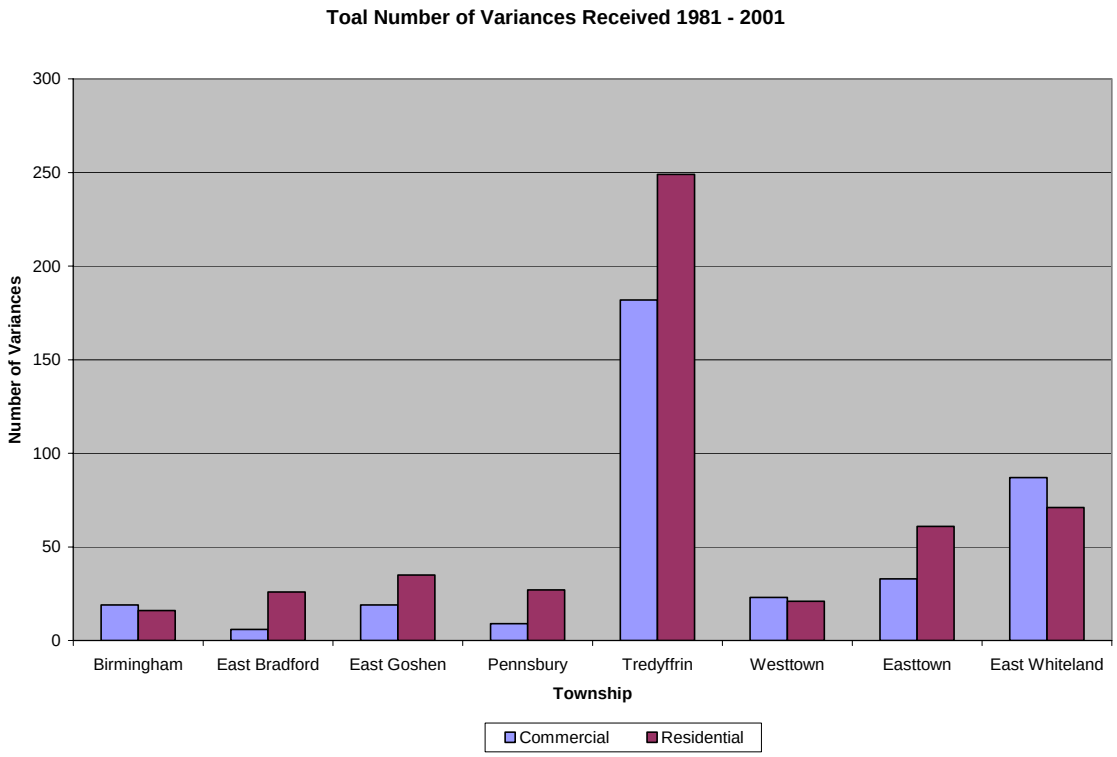

Figure B.12 Number of Commercial and Residential Variances Received, 1981 – 2001

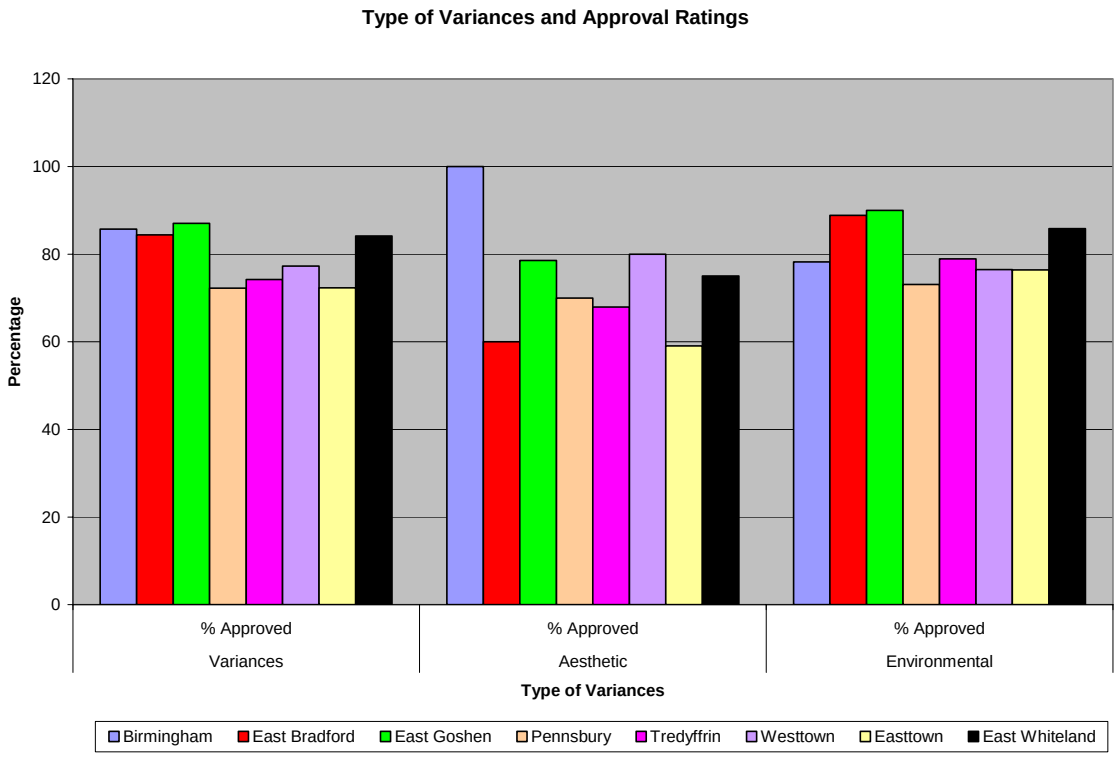

Figure B.13 Percentage of Environmental and Aesthetic Variances Approved 1981 – 2001

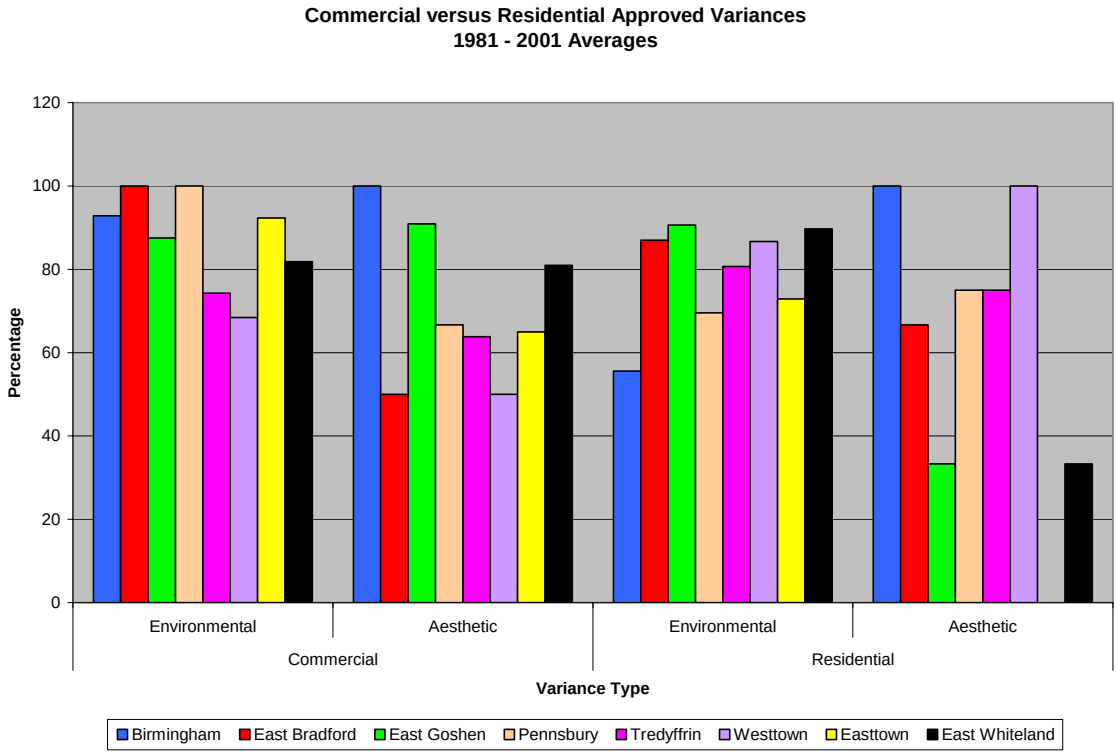

Figure B.14 Types of Variances and Approval Ratings Averaged from 1981 – 2001

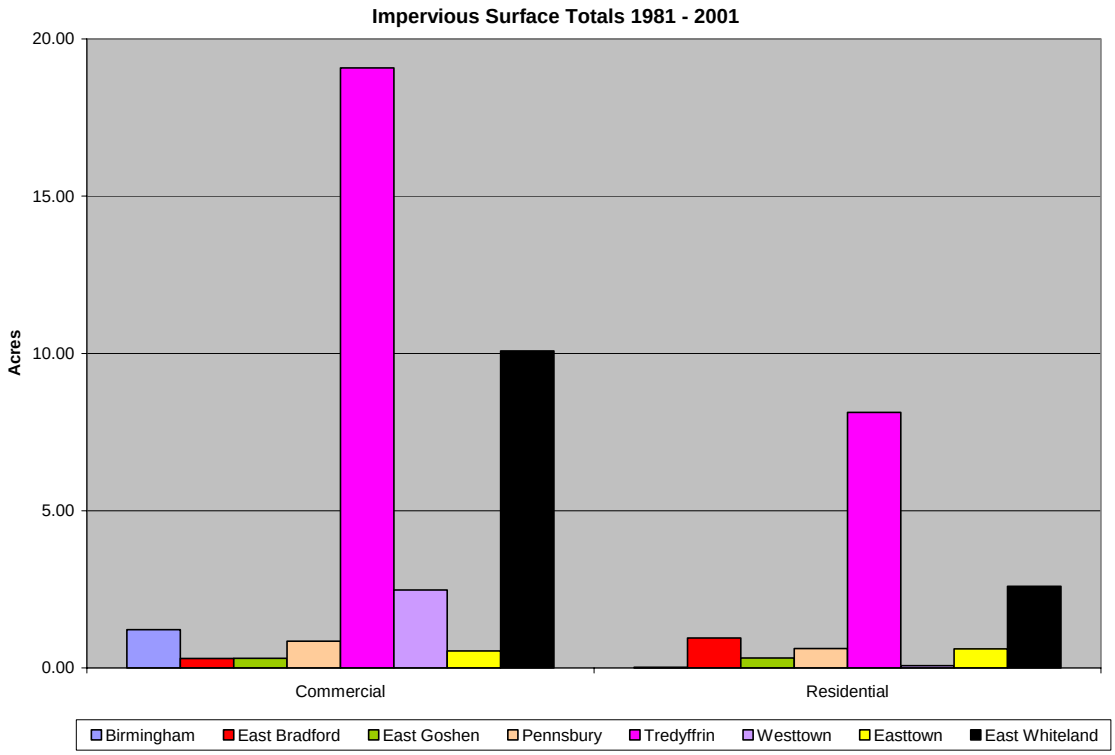

Figure B.15 Townships Impervious Surface Totals by Variance Type 1981 – 2001

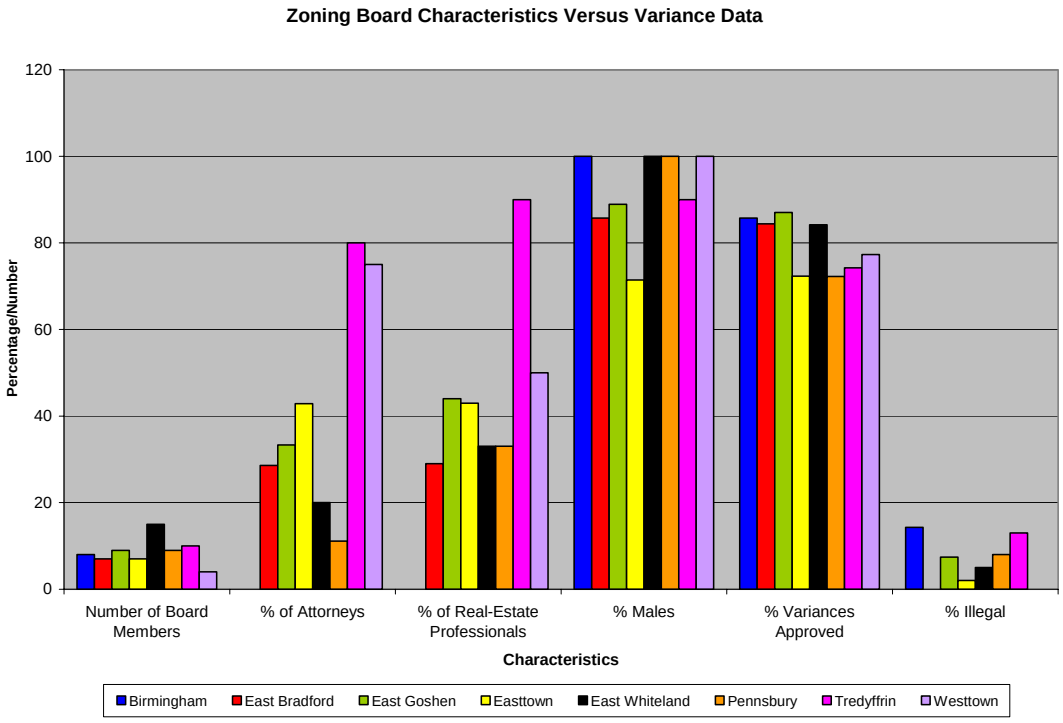

Figure B.16 Township Zoning Board Characteristics Versus Variance Data

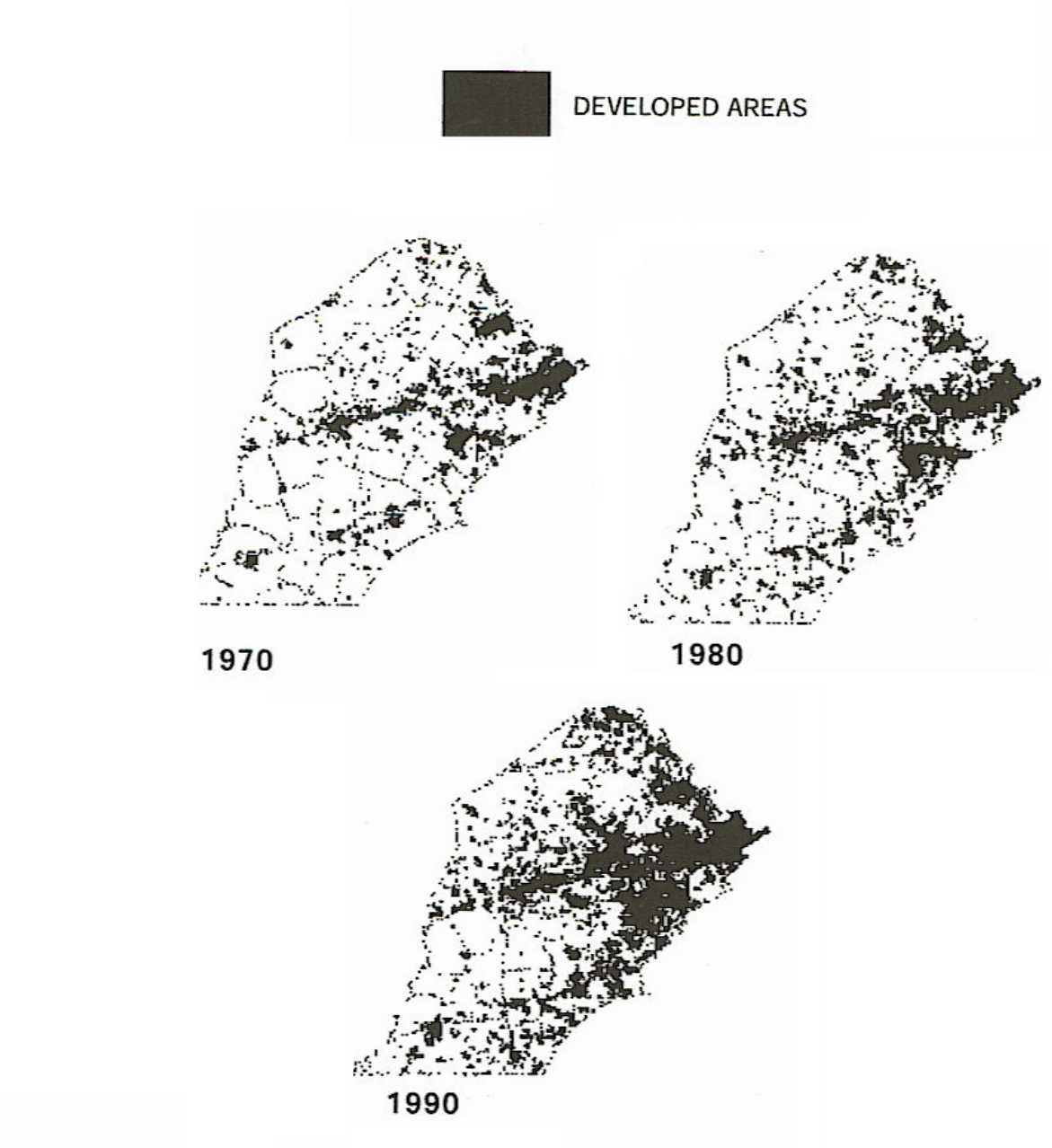

Figure B.17 Chester County Development Trends 1970 – 1990

Source: Chester County Planning Commission, 1998

Human-Environment Interactions (adopted from Paul Stern's model)			
Origins of Environmental Degradation		**Outcomes of Driving Forces**	**Impacts of Environmental Degradation**
Social/Political Origins	**Driving Forces**		**On Natural Environment**
Zoning Boards	Demographics of Township; Selection by Township Manager	Less diverse makeup of board	Increase in Impervious Surface
Zoning Variances	Growth Machine	Poor turnover of zoning board members	Degradation of watersheds
	Socio-economic influences of township; diversity of zoning board	High overall approval ratings; low approval ratings for residential environmental variances Illegal decision-making	Contribute to Sprawling Development

Figure B.18 Methodology Diagram

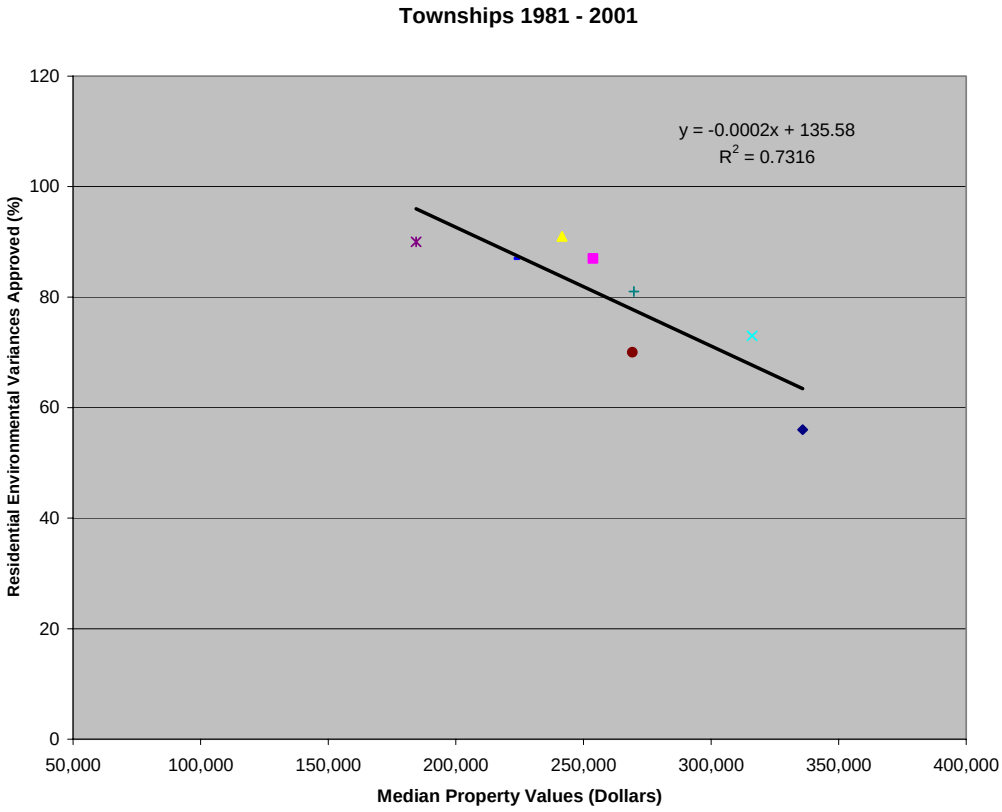

Figure B.19 Regression Analysis of Median Property Values versus Residential Environmental Variance Approval Rating

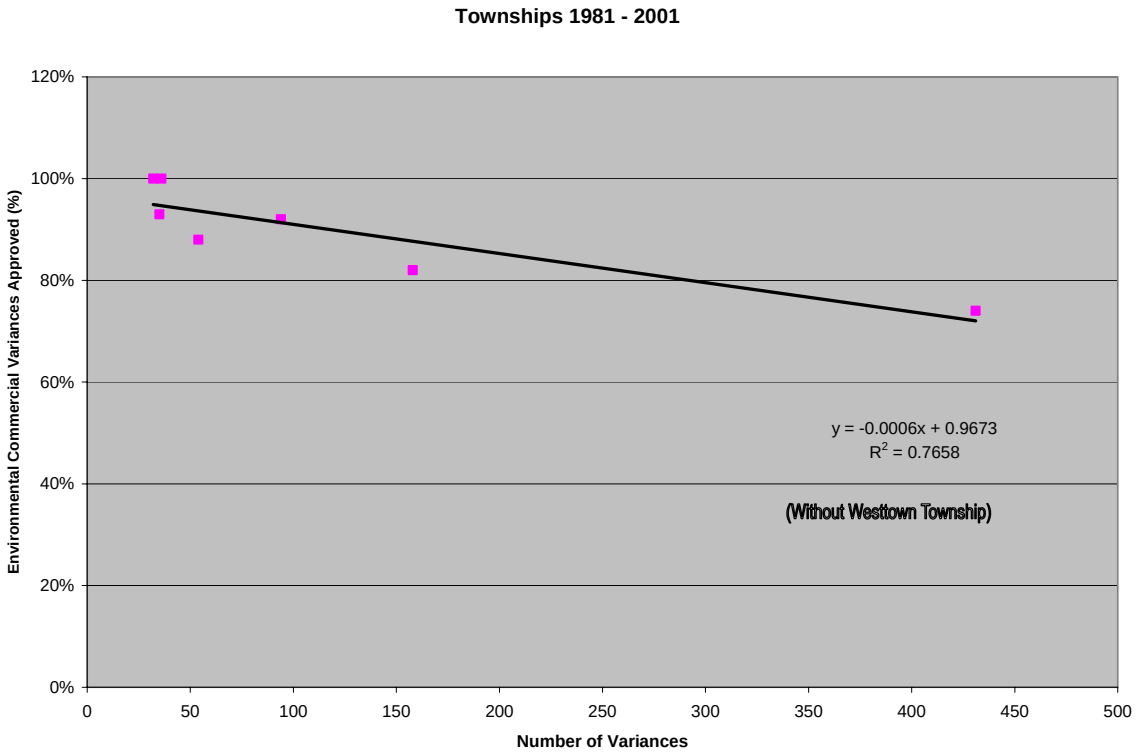

Figure B.20 Regression Analysis of Number of Variances versus Environmental Commercial Variances Approved

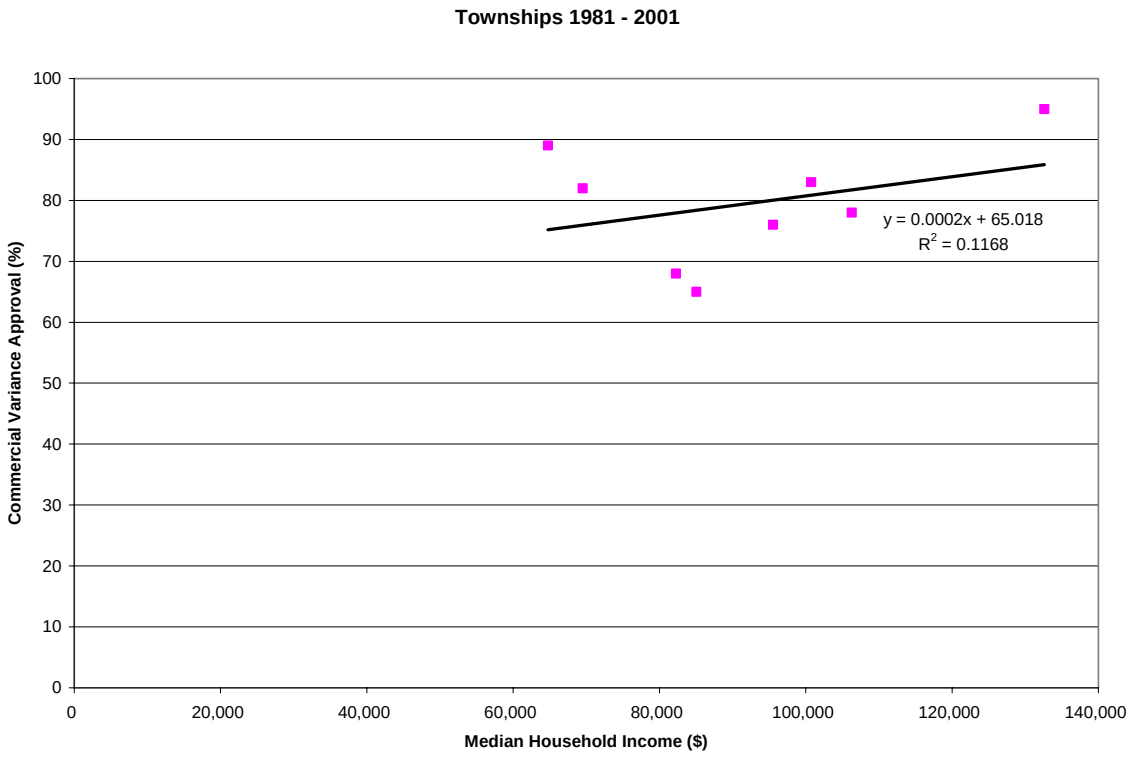

Figure B.21 Regression Analysis Median Household Income versus Commercial Variance Approval

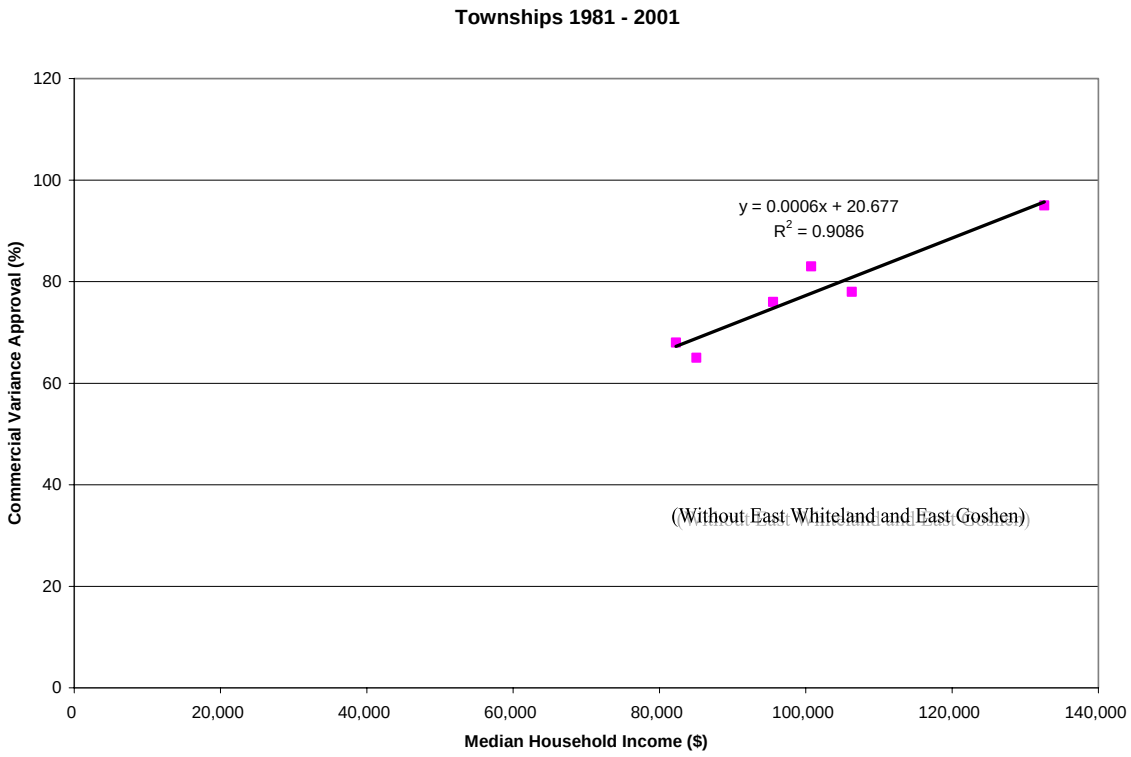

Figure B.22 Regression Analysis Median Household Income versus Commercial Variance Approval (without East Whiteland and East Goshen)

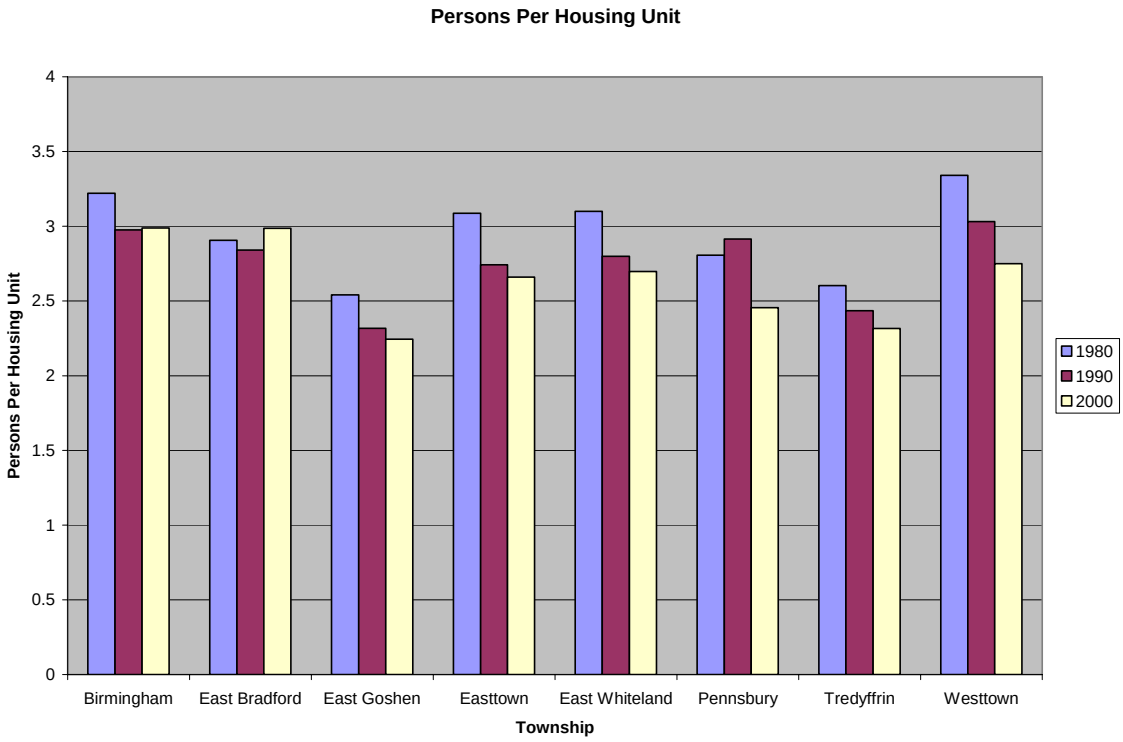

Figure B.23 Township Density Per Housing Units 1980 - 2000

Appendix C: PA Municipal Planning Code Article X – Zoning Board Section

general circulation in the municipality. Such notice shall include a general description of the proposed use or development and its location, by some readily identifiable directive, and the place and times where the plans and other materials may be examined by the public. The favorable preliminary approval under section 914.1 and the time therein specified for commencing a proceeding with the board shall run from the time when the second notice thereof has been published.

Section 917. Applicability of Ordinance Amendments. When an application for either a special exception or a conditional use has been filed with either the zoning hearing board or governing body, as relevant, and the subject matter of such application would ultimately constitute either a land development as defined in section 107 or a subdivision as defined in section 107, no change or amendment of the zoning, subdivision or other governing ordinance or plans shall affect the decision on such application adversely to the applicant and the applicant shall be entitled to a decision in accordance with the provisions of the governing ordinances or plans as they stood at the time the application was duly filed. Provided, further, should such an application be approved by either the zoning hearing board or governing body, as relevant, applicant shall be entitled to proceed with the submission of either land development or subdivision plans within a period of six months or longer as may be approved by either the zoning hearing board or the governing body following the date of such approval in accordance with the provisions of the governing ordinances or plans as they stood at the time the application was duly filed before either the zoning hearing board or governing body, as relevant. If either a land development or subdivision plan is so filed within said period, such plan shall be subject to the provisions of section 508(1) through (4), and specifically to the time limitations of section 508(4) which shall commence as of the date of filing such land development or subdivision plan.

Section 918. Special Applicability Provisions. A municipal zoning ordinance enacted on or before August 21, 2000 shall not be invalidated, superseded or affected by any amendatory provision of the act of June 22, 2000 (P.L. 483 No.67), entitled "An act amending the act of July 31, 1968 (P.L.805, No.247), entitled, as amended, 'An act to empower cities of the second class a, and third class, boroughs, incorporated towns, townships of the first and second classes including those within a county of the second class and counties of the second through eighth classes, individually or jointly, to plan their development and to govern the same by zoning, subdivision and land development ordinances, planned residential development and other ordinances, by official maps, by the reservation of certain land for future public purpose and by the acquisition of such land; to promote the conservation of energy through the use of planning practices and to promote the effective utilization of renewable energy sources; providing for the establishment of planning commissions, planning departments, planning committees and zoning hearing boards, authorizing them to charge fees, make inspections and hold public hearings; providing for mediation; providing for transferable development rights; providing for appropriations, appeals to courts and penalties for violations; and repealing acts and parts of acts,' adding definitions; providing for intergovernmental cooperative planning and implementation agreements; further providing for repeals; and making an editorial change," or the act of June 22, 2000 (P.L.495, No.68), entitled "An act amending the act of July 31, 1968 (P.L.805, No.247), entitled, as amended, 'An act to empower cities of the second class a, and third class, boroughs, incorporated towns, townships of the first and second classes including those within a county of the second class and counties of the second through eighth classes, individually or jointly, to plan their development and to govern the same by zoning, subdivision and land development ordinances, planned residential development and other ordinances, by official maps, by the reservation of certain land for future public purpose and by the acquisition of such land; to promote the conservation of energy through the use of planning practices and to promote the effective utilization of renewable *energy sources; providing for the establishment of planning commissions, planning departments, planning* committees and zoning hearing boards, authorizing them to charge fees, make inspections and hold public hearings; providing for mediation; providing for transferable development rights; providing for appropriations, appeals to courts and penalties for violations; and repealing acts and parts of acts,' further providing for the purpose of the act; adding certain definitions; further providing for various matters relating to the comprehensive plan and for compliance by counties; providing for funding for municipal planning and for neighboring

(g) Where, after the effective date of this act, a curative amendment proposal is approved by the grant of a curative amendment application by the governing body pursuant to section 909.1(b)(4) or a validity challenge is sustained by the zoning hearing board pursuant to section 909.1(a)(1) or the court acts finally on appeal from denial of a curative amendment proposal or a validity challenge, and the proposal or challenge so approved requires a further application for subdivision or land development, the developer shall have two years from the date of such approval to file an application for preliminary or tentative approval pursuant to Article V or VII. Within the two-year period, no subsequent change or amendment in the zoning, subdivision or other governing ordinance or plan shall be applied in any manner which adversely affects the rights of the applicant as granted in the curative amendment or the sustained validity challenge. Upon the filing of the preliminary or tentative plan, the provisions of section 508(4) shall apply. Where the proposal appended to the curative amendment application or the validity challenge is approved but does not require further application under any subdivision or land development ordinance, the developer shall have one year within which to file for a building permit. Within the one-year period, no subsequent change or amendment in the zoning, subdivision or other governing ordinance or plan shall be applied in any manner which adversely affects the rights of the applicant as granted in the curative amendment or the sustained validity challenge. During these protected periods, the court shall retain or assume jurisdiction for the purpose of awarding such supplemental relief as may be necessary.

(h) Where municipalities have adopted a multimunicipal comprehensive plan pursuant to Article XI but have not adopted a joint municipal ordinance pursuant to Article VIII-A and all municipalities participating in the multimunicipal comprehensive plan have adopted and are administering zoning ordinances generally consistent with the provisions of the multimunicipal comprehensive plan, and a challenge is brought to the validity of a zoning ordinance of a participating municipality involving a proposed use, then the zoning hearing board or governing body, as the case may be, shall consider the availability of uses under zoning ordinances within the municipalities participating in the multimunicipal comprehensive plan within a reasonable geographic area and shall not limit its consideration to the application of the zoning ordinance on the municipality whose zoning ordinance is being challenged.

(i) A landowner who has challenged on substantive grounds the validity of a zoning ordinance or map either by submission of a curative amendment to the governing body under subsection (a) (2) or to the zoning hearing board under section 909.1 (a) (1) shall not submit any additional substantive challenges involving the same parcel, group of parcels or part thereof until such time as the status of the landowner's original challenge has been finally determined or withdrawn: Provided, however, that if after the date of the landowner's original challenge the municipality adopts a substantially new or different zoning ordinance or zoning map, the landowner may file a second substantive challenge to the new or different zoning ordinance or zoning map under subsection (a).

Section 916.2. Procedure to Obtain Preliminary Opinion. In order not to unreasonably delay the time when a landowner may secure assurance that the ordinance or map under which he proposed to build is free from challenge, and recognizing that the procedure for preliminary approval of his development may be too cumbersome or may be unavailable, the landowner may advance the date from which time for any challenge to the ordinance or map will run under section 914.1 by the following procedure:

(1) The landowner may submit plans and other materials describing his proposed use or development to the zoning officer for a preliminary opinion as to their compliance with the applicable ordinances and maps. Such plans and other materials shall not be required to meet the standards prescribed for preliminary, tentative or final approval or for the issuance of a building permit so long as they provide reasonable notice of the proposed use or development and a sufficient basis for a preliminary opinion as to its compliance.

(2) If the zoning officer's preliminary opinion is that the use or development complies with the ordinance or map, notice thereof shall be published once each week for two successive weeks in a newspaper of

(4) The governing body may retain an independent attorney to present the defense of the challenged ordinance or map on its behalf and to present their witnesses on its behalf.

(5) Based upon the testimony presented at the hearing or hearings, the governing body or the zoning board, as the case may be, shall determine whether the challenged ordinance or map is defective, as alleged by the landowner. If a challenge heard by a governing body is found to have merit, the governing body shall proceed as provide in section 609.1. If a challenge heard by a zoning hearing board is found to have merit, the decision of the zoning hearing board shall include recommended amendments to the challenged ordinance which will cure the defects found. In reaching its decision, the zoning hearing board shall consider the amendments, plans and explanatory material submitted by the landowner and shall also consider:

(i) the impact of the proposal upon roads, sewer facilities, water supplies, schools and other public service facilities;

(ii) if the proposal is for a residential use, the impact of the proposal upon regional housing needs and the effectiveness of the proposal in providing housing units of a type actually available to and affordable by classes of persons otherwise unlawfully excluded by the challenged provisions of the ordinance or map;

(iii) the suitability of the site for the intensity of use proposed by the site's soils, slopes, woodlands, wetlands, flood plains, aquifers, natural resources and other natural features;

(iv) the impact of the proposed use on the site's soils, slopes, woodlands, wetlands, flood plains, natural resources and natural features, the degree to which these are protected or destroyed, the tolerance of the resources to development and any adverse environmental impacts; and

(v) the impact of the proposal on the preservation of agriculture and other land uses which are essential to public health and welfare.

(6) The governing body or the zoning hearing board, as the case may be, shall render its decision within 45 days after the conclusion of the last hearing.

(7) If the governing body or the zoning board, as the case may be, fails to act on the landowner's request within the time limits referred to in paragraph (6), a denial of the request is deemed to have occurred on the 46th day after the close of the last hearing.

(d) The zoning hearing board or governing body, as the case may be, shall commence its hearings within 60 days after the request is filed unless the landowner requests or consents to an extension of time.

(e) Public notice of the hearing shall include notice that the validity of the ordinance or map is in question and shall give the place where and the times when a copy of the request, including any plans, explanatory material or proposed amendments may be examined by the public.

(f) The challenge shall be deemed denied when:

(1) the zoning hearing board or governing body, as the case may be, fails to commence the hearing within the time limits set forth in subsection (d);

(2) the governing body notifies the landowner that it will not adopt the curative amendment;

(3) the governing body adopts another curative amendment which is unacceptable to the landowner; or

(4) the zoning hearing board or governing body, as the case may be, fails to act on the request 45 days after the close of the last hearing on the request, unless the time is extended by mutual consent by the landowner and municipality.

(b) After the petition is presented, the court shall hold a hearing to determine if the filing of the appeal is frivolous. At the hearing, evidence may be presented on the merits of the case. It shall be the burden of the applicant for a bond to prove the appeal is frivolous. After consideration of all evidence presented, if the court determines that the appeal is frivolous, it shall grant the petition for a bond. The right to petition the court to order the appellants to post bond may be waived by the appellee, but such waiver may be revoked by him if an appeal is taken from a final decision of the court.

(c) The question whether or not such petition should be granted and the amount of the bond shall be within the sound discretion of the court. An order denying a petition for bond shall be interlocutory. An order directing the responding party to post a bond shall be interlocutory.

(d) If an appeal is taken by a respondent to the petition for a bond from an order of the court dismissing a zoning appeal for refusal to post a bond and the appellate court sustains the order of the court below to post a bond, the respondent to the petition for a bond, upon motion of the petitioner and after hearing in the court having jurisdiction of zoning appeals, shall be liable for all reasonable costs, expenses and attorney fees incurred by the petitioner.

Section 916. Stay of Proceedings. (916 repealed Dec. 21, 1988, P.L.1329, No.170)

Section 916.1. Validity of Ordinance; Substantive Questions.

(a) A landowner who, on substantive grounds, desires to challenge the validity of an ordinance or map or any provision thereof which prohibits or restricts the use or development of land in which he has an interest shall submit the challenge either:

(1) to the zoning hearing board under section 909.1(a); or

(2) to the governing body under section 909.1(b)(4), together with a request for a curative amendment under section 609.1.

(b) Persons aggrieved by a use or development permitted on the land of another by an ordinance or map, or any provision thereof, who desires to challenge its validity on substantive grounds shall first submit their challenge to the zoning hearing board for a decision thereon under section 909.1(a)(1).

(c) The submissions referred to in subsections (a) and (b) shall be governed by the following:

(1) In challenges before the zoning hearing board, the challenging party shall make a written request to the board that it hold a hearing on its challenge. The request shall contain the reasons for the challenge. Where the landowner desires to challenge the validity of such ordinance and elects to proceed by curative amendment under section 609.1, his application to the governing body shall contain, in addition to the requirements of the written request hereof, the plans and explanatory materials describing the use or development proposed by the landowner in lieu of the use or development permitted by the challenged ordinance or map. Such plans or other materials shall not be required to meet the standards prescribed for preliminary, tentative or final approval or for the issuance of a permit, so long as they provide reasonable notice of the proposed use or development and a sufficient basis for evaluating the challenged ordinance or map in light thereof. Nothing herein contained shall preclude the landowner from first seeking a final approval before submitting his challenge.

(2) If the submission is made by the landowner to the governing body under subsection (a)(2), the request also shall be accompanied by an amendment or amendments to the ordinance proposed by the landowner to cure the alleged defects therein.

(3) If the submission is made to the governing body, the municipal solicitor shall represent and advise it at the hearing or hearings referred to in section 909.1(b)(4).

application to the court of common pleas, the decision shall be deemed to have been rendered in favor of the applicant unless the applicant has agreed in writing or on the record to an extension of time. When a decision has been rendered in favor of the applicant because of the failure of the governing body to meet or render a decision as hereinabove provided, the governing body shall give public notice of the decision within ten days from the last day it could have met to render a decision in the same manner as required by the public notice requirements of this act. If the governing body shall fail to provide such notice, the applicant may do so.

(3) Nothing in this subsection shall prejudice the right of any party opposing the application to appeal the decision to a court of competent jurisdiction. A copy of the final decision or, where no decision is called for, of the findings shall be delivered to the applicant personally or mailed to him no later than the day following its date.

Section 913.3. Parties Appellant Before the Board. Appeals under section 909.1(a)(1), (2), (3), (4), (7), (8) and (9) may be filed with the board in writing by the landowner affected, any officer or agency of the municipality, or any person aggrieved. Requests for a variance under section 910.2 and for special exception under section 912.1 may be filed with the board by any landowner or any tenant with the permission of such landowner.

Section 914. Parties Appellant Before Board. (914 repealed Dec. 21, 1988, P.L.1329, No.170)

Section 914.1. Time Limitations.

(a) No person shall be allowed to file any proceeding with the board later than 30 days after an application for development, preliminary or final, has been approved by an appropriate municipal officer, agency or body if such proceeding is designed to secure reversal or to limit the approval in any manner unless such person alleges and proves that he had no notice, knowledge, or reason to believe that such approval had been given. If such person has succeeded to his interest after such approval, he shall be bound by the knowledge of his predecessor in interest. The failure of anyone other than the landowner to appeal from an adverse decision on a tentative plan pursuant to section 709 or from an adverse decision by a zoning officer on a challenge to the validity of an ordinance or map pursuant to section 916.2 shall preclude an appeal from a final approval except in the case where the final submission substantially deviates from the approved tentative approval.

(b) All appeals from determinations adverse to the landowners shall be filed by the landowner within 30 days after notice of the determination is issued.

Section 915. Time Limitations; Persons Aggrieved. (915 repealed Dec. 21, 1988, P.L.1329, No.170)

Section 915.1. Stay of Proceedings.

(a) Upon filing of any proceeding referred to in section 913.3 and during its pendency before the board, all land development pursuant to any challenged ordinance, order or approval of the zoning officer or of any agency or body, and all official action thereunder, shall be stayed unless the zoning officer or any other appropriate agency or body certifies to the board facts indicating that such stay would cause imminent peril to life or property, in which case the development or official action shall not be stayed otherwise than by a restraining order, which may be granted by the board or by the court having jurisdiction of zoning appeals, on petition, after notice to the zoning officer or other appropriate agency or body. When an application for development, preliminary or final, has been duly approved and proceedings designed to reverse or limit the approval are filed with the board by persons other than the applicant, the applicant may petition the court having jurisdiction of zoning appeals to order such persons to post bond as a condition to continuing the proceedings before the board.

(2) That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the zoning ordinance and that the authorization of a variance is therefore necessary to enable the reasonable use of the property.

(3) That such unnecessary hardship has not been created by the appellant.

(4) That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located, nor substantially or permanently impair the appropriate use or development of adjacent property, nor be detrimental to the public welfare.

(5) That the variance, if authorized, will represent the minimum variance that will afford relief and will represent the least modification possible of the regulation in issue.

(b) In granting any variance, the board may attach such reasonable conditions and safeguards as it may deem necessary to implement the purposes of this act and the zoning ordinance.

Section 912. Board's Functions: Variances. (912 repealed Dec. 21, 1988, P.L.1329, No.170)

Section 912.1. Zoning Hearing Board's Functions; Special Exception. Where the governing body, in the zoning ordinance, has stated special exceptions to be granted or denied by the board pursuant to express standards and criteria, the board shall hear and decide requests for such special exceptions in accordance with such standards and criteria. In granting a special exception, the board may attach such reasonable conditions and safeguards, in addition to those expressed in the ordinance, as it may deem necessary to implement the purposes of this act and the zoning ordinance.

Section 913. Board's Functions: Special Exceptions. (913 repealed Dec. 21, 1988, P.L.1329, No.170)

Section 913.1. Unified Appeals. (913.1 repealed Dec. 21, 1988, P.L.1329, No.170)

Section 913.2. Governing Body's Functions; Conditional Uses.

(a) Where the governing body, in the zoning ordinances, has stated conditional uses to be granted or denied by the governing body pursuant to express standards and criteria, the governing body shall hold hearings on and decide requests for such conditional uses in accordance with such standards and criteria. The hearing shall be conducted by the board or the board may appoint any member or an independent attorney as a hearing officer. The decision, or, where no decision is called for, the findings shall be made by the board. However, the appellant or the applicant, as the case may be, in addition to the municipality, may, prior to the decision of the hearing, waive decision or findings by the board and accept the decision or findings of the hearing officer as final. In granting a conditional use, the governing body may attach such reasonable conditions and safeguards, in addition to those expressed in the ordinance, as it may deem necessary to implement the purposes of this act in the zoning ordinance.

(b) (1) The governing body shall render a written decision or, when no decision is called for, make written findings on the conditional use application within 45 days after the last hearing before the governing body. Where the application is contested or denied, each decision shall be accompanied by findings of fact or conclusions based thereon, together with any reasons therefor. Conclusions based on any provisions of this act or of any ordinance, rule or regulation shall contain a reference to the provision relied on and the reasons why the conclusion is deemed appropriate in the light of the facts found.

(2) Where the governing body fails to render the decision within the period required by this subsection or fails to commence, conduct or complete the required hearing as provided in section 908 (1.2), within 60 days from the date of the applicant's request for a hearing or fails to complete the hearing no later than 100 days after the completion of the applicant's case in chief, unless extended for good cause upon

(b) The governing body or, except as to clauses (3), (4) and (5), the planning agency, if designated, shall have exclusive jurisdiction to hear and render final adjudications in the following matters:

(1) All applications for approvals of planned residential developments under Article VII pursuant to the provisions of section 702.

(2) All applications pursuant to section 508 for approval of subdivisions or land developments under Article V. Any provision in a subdivision and land development ordinance requiring that final action concerning subdivision and land development applications be taken by a planning agency rather than the governing body shall vest exclusive jurisdiction in the planning agency in lieu of the governing body for purposes of the provisions of this paragraph.

(3) Applications for conditional use under the express provisions of the zoning ordinance pursuant to section 603(c)(2).

(4) Applications for curative amendment to a zoning ordinance pursuant to sections 609.1 and 916.1(a)(2).

(5) All petitions for amendments to land use ordinances, pursuant to the procedures set forth in section 609. Any action on such petitions shall be deemed legislative acts, provided that nothing contained in this clause shall be deemed to enlarge or diminish existing law with reference to appeals to court.

(6) Appeals from the determination of the zoning officer or the municipal engineer in the administration of any land use ordinance or provisions thereof with reference to sedimentation and erosion control and storm water management insofar as the same relate to application for land development under Articles V and VII. Where such determination relates only to development not involving an Article V or VII application, the appeal from such determination of the zoning officer or the municipal engineer shall be to the zoning hearing board pursuant to subsection (a)(9). Where the applicable land use ordinance vests jurisdiction for final administration of subdivision and land development applications in the planning agency, all appeals from determinations under this paragraph shall be to the planning agency and all appeals from the decision of the planning agency shall be to court.

(7) Applications for a special encroachment permit pursuant to section 405 and applications for a permit pursuant to section 406.

Section 910. Board Functions: Challenge to the Validity of any Ordinance or Map. (910 repealed Dec. 21, 1988, P.L.1329, No.170)

Section 910.1. Applicability of Judicial Remedies. Nothing contained in this article shall be construed to deny the appellant the right to proceed directly to court where appropriate, pursuant to the Pennsylvania Rules of Civil Procedure No. 1091 (relating to action in mandamus).

Section 910.2. Zoning Hearing Board's Functions; Variances.

(a) The board shall hear requests for variances where it is alleged that the provisions of the zoning ordinance inflict unnecessary hardship upon the applicant. The board may by rule prescribe the form of application and may require preliminary application to the zoning officer. The board may grant a variance, provided that all of the following findings are made where relevant in a given case:

(1) That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the unnecessary hardship is due to such conditions and not the circumstances or conditions generally created by the provisions of the zoning ordinance in the neighborhood or district in which the property is located.

(3) Completing mediation, including time limits for such completion.

(4) Suspending time limits otherwise authorized in this act, provided there is written consent by the mediating parties, and by an applicant or municipal decision making body if either is not a party to the mediation.

(5) Identifying all parties and affording them the opportunity to participate.

(6) Subject to legal restraints, determining whether some or all of the mediation sessions shall be open or closed to the public.

(7) Assuring that mediated solutions are in writing and signed by the parties, and become subject to review and approval by the appropriate decision making body pursuant to the authorized procedures set forth in the other sections of this act.

(c) No offers or statements made in the mediation sessions, excluding the final written mediated agreement, shall be admissible as evidence in any subsequent judicial or administrative proceedings.

Section 909. Board's Functions: Appeals from the Zoning Officer. (909 repealed Dec. 21, 1988, P.L.1329, No.170)

Section 909.1. Jurisdiction.

(a) The zoning hearing board shall have exclusive jurisdiction to hear and render final adjudications in the following matters:

(1) Substantive challenges to the validity of any land use ordinance, except those brought before the governing body pursuant to sections 609.1 and 916.1(a)(2).

(2) Challenges to the validity of a land use ordinance raising procedural questions or alleged defects in the process of enactment or adoption which challenges shall be raised by an appeal taken within 30 days after the effective date of said ordinance. Where the ordinance appealed from is the initial zoning ordinance of the municipality and a zoning hearing board has not been previously established, the appeal raising procedural questions shall be taken directly to court.

(3) Appeals from the determination of the zoning officer, including, but not limited to, the granting or denial of any permit, or failure to act on the application therefor, the issuance of any cease and desist order or the registration or refusal to register any nonconforming use, structure or lot.

(4) Appeals from a determination by a municipal engineer or the zoning officer with reference to the administration of any flood plain or flood hazard ordinance or such provisions within a land use ordinance.

(5) Applications for variances from the terms of the zoning ordinance and flood hazard ordinance or such provisions within a land use ordinance, pursuant to section 910.2.

(6) Applications for special exceptions under the zoning ordinance or flood plain or flood hazard ordinance or such provisions within a land use ordinance, pursuant to section 912.1.

(7) Appeals from the determination of any officer or agency charged with the administration of any transfers of development rights or performance density provisions of the zoning ordinance.

(8) Appeals from the zoning officer's determination under section 916.2.

(9) Appeals from the determination of the zoning officer or municipal engineer in the administration of any land use ordinance or provision thereof with reference to sedimentation and erosion control and storm water management insofar as the same relate to development not involving Article V or VII applications.

such copy or copies. In other cases the party requesting the original transcript shall bear the cost thereof.

(8) The board or the hearing officer shall not communicate, directly or indirectly, with any party or his representatives in connection with any issue involved except upon notice and opportunity for all parties to participate, shall not take notice of any communication, reports, staff memoranda, or other materials, except advice from their solicitor, unless the parties are afforded an opportunity to contest the material so noticed and shall not inspect the site or its surroundings after the commencement of hearings with any party or his representative unless all parties are given an opportunity to be present.

(9) The board or the hearing officer, as the case may be, shall render a written decision or, when no decision is called for, make written findings on the application within 45 days after the last hearing before the board or hearing officer. Where the application is contested or denied, each decision shall be accompanied by findings of fact and conclusions based thereon together with the reasons therefor. Conclusions based on any provisions of this act or of any ordinance, rule or regulation shall contain a reference to the provision relied on and the reasons why the conclusion is deemed appropriate in the light of the facts found. If the hearing is conducted by a hearing officer and there has been no stipulation that his decision or findings are final, the board shall make his report and recommendations available to the parties within 45 days and the parties shall be entitled to make written representations thereon to the board prior to final decision or entry of findings, and the board's decision shall be entered no later than 30 days after the report of the hearing officer. Except for challenges filed under section 916.1 where the board fails to render the decision within the period required by this subsection or fails to commence, conduct or complete the required hearing as provided in subsection (1.2), the decision shall be deemed to have been rendered in favor of the applicant unless the applicant has agreed in writing or on the record to an extension of time. When a decision has been rendered in favor of the applicant because of the failure of the board to meet or render a decision as hereinabove provided, the board shall give public notice of said decision within ten days from the last day it could have met to render a decision in the same manner as provided in subsection (1) of this section. If the board shall fail to provide such notice, the applicant may do so. Nothing in this subsection shall prejudice the right of any party opposing the application to appeal the decision to a court of competent jurisdiction.

(10) A copy of the final decision or, where no decision is called for, of the findings shall be delivered to the applicant personally or mailed to him not later than the day following its date. To all other persons who have filed their name and address with the board not later than the last day of the hearing, the board shall provide by mail or otherwise, brief notice of the decision or findings and a statement of the place at which the full decision or findings may be examined.

Section 908.1. Mediation Option.

(a) Parties to proceedings authorized in this article and Article X-A may utilize mediation as an aid in completing such proceedings. In proceedings before the zoning hearing board, in no case shall the zoning hearing board initiate mediation or participate as a mediating party. Mediation shall supplement, not replace, those procedures in this article and Article X-A once they have been formally initiated. Nothing in this section shall be interpreted as expanding or limiting municipal police powers or as modifying any principles of substantive law.

(b) Participation in mediation shall be wholly voluntary. The appropriateness of mediation shall be determined by the particulars of each case and the willingness of the parties to negotiate. Any municipality offering the mediation option shall assure that, in each case, the mediating parties, assisted by the mediator as appropriate, develop terms and conditions for:

(1) Funding mediation.

(2) Selecting a mediator who, at a minimum, shall have a working knowledge of municipal zoning and subdivision procedures and demonstrated skills in mediation.

Section 908. Hearings. The board shall conduct hearings and make decisions in accordance with the following requirements:

(1) Public notice shall be given and written notice shall be given to the applicant, the zoning officer, such other persons as the governing body shall designate by ordinance and to any person who has made timely request for the same. Written notices shall be given at such time and in such manner as shall be prescribed by ordinance or, in the absence of ordinance provision, by rules of the board. In addition to the written notice provided herein, written notice of said hearing shall be conspicuously posted on the affected tract of land at least one week prior to the hearing.

(1.1) The governing body may prescribe reasonable fees with respect to hearings before the zoning hearing board. Fees for said hearings may include compensation for the secretary and members of the zoning hearing board, notice and advertising costs and necessary administrative overhead connected with the hearing. The costs, however, shall not include legal expenses of the zoning hearing board, expenses for engineering, architectural or other technical consultants or expert witness costs.

(1.2) The first hearing before the board or hearing officer shall be commenced within 60 days from the date of receipt of the applicant's application, unless the applicant has agreed in writing to an extension of time. Each subsequent hearing before the board or hearing officer shall be held within 45 days of the prior hearing, unless otherwise agreed to by the applicant in writing or on the record. An applicant shall complete the presentation of his case-in-chief within 100 days of the first hearing. Upon the request of the applicant, the board or hearing officer shall assure that the applicant receives at least seven hours of hearings within the 100 days, including the first hearing. Persons opposed to the application may, upon the written consent or consent on the record by the applicant and municipality, be granted additional hearings to complete their opposition to the application provided the applicant is granted an equal number of additional hearings for rebuttal.

(2) The hearings shall be conducted by the board or the board may appoint any member or an independent attorney as a hearing officer. The decision, or, where no decision is called for, the findings shall be made by the board; however, the appellant or the applicant, as the case may be, in addition to the municipality, may, prior to the decision of the hearing, waive decision or findings by the board and accept the decision or findings of the hearing officer as final.

(3) The parties to the hearing shall be the municipality, any person affected by the application who has made timely appearance of record before the board, and any other person including civic or community organizations permitted to appear by the board. The board shall have power to require that all persons who wish to be considered parties enter appearances in writing on forms provided by the board for that purpose.

(4) The chairman or acting chairman of the board or the hearing officer presiding shall have power to administer oaths and issue subpoenas to compel the attendance of witnesses and the production of relevant documents and papers, including witnesses and documents requested by the parties.

(5) The parties shall have the right to be represented by counsel and shall be afforded the opportunity to respond and present evidence and argument and cross-examine adverse witnesses on all relevant issues.

(6) Formal rules of evidence shall not apply, but irrelevant, immaterial, or unduly repetitious evidence may be excluded.

(7) The board or the hearing officer, as the case may be, shall keep a stenographic record of the proceedings. The appearance fee for a stenographer shall be shared equally by the applicant and the board. The cost of the original transcript shall be paid by the board if the transcript is ordered by the board or hearing officer or shall be paid by the person appealing from the decision of the board if such appeal is made, and in either event the cost of additional copies shall be paid by the person requesting

Section 904. Joint Zoning Hearing Boards.

(a) Two or more municipalities may, by ordinances enacted in each, create a joint zoning hearing board in lieu of a separate board for each municipality. A joint board shall consist of two members appointed from among the residents of each municipality by its governing body.

(b) The term of office of members of joint boards shall be five years, except that of the two members first appointed from each municipality, the term of office of one member shall be three years. When any vacancies occur, the joint board shall promptly notify the governing body which appointed the member whose office has become vacant, and such governing body shall appoint a member for the unexpired portion of the term. Members of the joint board shall hold no other office in the participating municipality.

(c) Where legal counsel is desired, an attorney, other than the solicitors of the participating municipalities, may be appointed to serve as counsel to the joint zoning hearing board.

(d) In all other respects, including the appointment and seating of alternate members, joint zoning hearing boards shall be governed by provisions of this act not inconsistent with the provisions of this section.

Section 905. Removal of Members. Any board member may be removed for malfeasance, misfeasance or nonfeasance in office or for other just cause by a majority vote of the governing body which appointed the member, taken after the member has received 15 days' advance notice of the intent to take such a vote. A hearing shall be held in connection with the vote if the member shall request it in writing.

Section 906. Organization of Board.

(a) The board shall elect from its own membership its officers, who shall serve annual terms as such and may succeed themselves. For the conduct of any hearing and the taking of any action, a quorum shall be not less than a majority of all the members of the board, but the board may appoint a hearing officer from its own membership to conduct any hearing on its behalf and the parties may waive further action by the board as provided in section 908.

(b) If, by reason of absence or disqualification of a member, a quorum is not reached, the chairman of the board shall designate as many alternate members of the board to sit on the board as may be needed to provide a quorum. Any alternate member of the board shall continue to serve on the board in all proceedings involving the matter or case for which the alternate was initially appointed until the board has made a final determination of the matter or case. Designation of an alternate pursuant to this section shall be made on a case-by-case basis in rotation according to declining seniority among all alternates.

(c) The board may make, alter and rescind rules and forms for its procedure, consistent with ordinances of the municipality and laws of the Commonwealth. The board shall keep full public records of its business, which records shall be the property of the municipality, and shall submit a report of its activities to the governing body as requested by the governing body.

Section 907. Expenditures for Services. Within the limits of funds appropriated by the governing body, the board may employ or contract for secretaries, clerks, legal counsel, consultants and other technical and clerical services. Members of the board may receive compensation for the performance of their duties, as may be fixed by the governing body, but in no case shall it exceed the rate of compensation authorized to be paid to the members of the governing body. Alternate members of the board may receive compensation, as may be fixed by the governing body, for the performance of their duties when designated as alternate members pursuant to section 906, but in no case shall such compensation exceed the rate of compensation authorized to be paid to the members of the governing body.

Section 819-A. Finances.

(a) The governing body of a municipality may appropriate and receive funds for a joint municipal zoning ordinance in the same manner as authorized for a municipal zoning ordinance by section 617.2.

(b) A joint municipal zoning ordinance shall specify the manner and extent of financing the costs for administration and enforcement, including the financial responsibilities for defending legal challenges to the ordinance.

Section 820-A. Exemptions. The exemptions for a joint municipal zoning ordinance shall be those identified by section 619.

Section 821-A. Existing Bodies. Municipalities which, on or before the effective date of this amendatory act, established joint bodies under former Article XI-A of this act, shall have five years from the effective date of this amendatory act to comply with the provisions of this article.

Article IX - Zoning Hearing Board and other Administrative Proceedings

Section 901. General Provisions. Every municipality which has enacted or enacts a zoning ordinance pursuant to this act or prior enabling laws, shall create a zoning hearing board. As used in this article, unless the context clearly indicates otherwise, the term "board" shall refer to such zoning hearing board.

Section 902. Existing Boards of Adjustment. (902 repealed Dec. 21, 1988, P.L.1329, No.170)

Section 903. Membership of Board.

(a) The membership of the board shall, upon the determination of the governing body, consist of either three or five residents of the municipality appointed by resolution by the governing body. The terms of office of a three member board shall be three years and shall be so fixed that the term of office of one member shall expire each year. The terms of office of a five member board shall be five years and shall be so fixed that the term of office of one member of a five member board shall expire each year. If a three member board is changed to a five member board, the members of the existing three member board shall continue in office until their term of office would expire under prior law. The governing body shall appoint two additional members to the board with terms scheduled to expire in accordance with the provisions of this section. The board shall promptly notify the governing body of any vacancies which occur. Appointments to fill vacancies shall be only for the unexpired portion of the term. Members of the board shall hold no other office in the municipality.

(b) The governing body may appoint by resolution at least one but no more than three residents of the municipality to serve as alternate members of the board. The term of office of an alternate member shall be three years. When seated pursuant to the provisions of section 906, an alternate shall be entitled to participate in all proceedings and discussions of the board to the same and full extent as provided by law for board members, including specifically the right to cast a vote as a voting member during the proceedings, and shall have all the powers and duties set forth in this act and as otherwise provided by law. Alternates shall hold no other office in the municipality, including membership on the planning commission and zoning officer. Any alternate may participate in any proceeding or discussion of the board but shall not be entitled to vote as a member of the board nor be compensated pursuant to section 907 unless designated as a voting alternate member pursuant to section 906.

municipalities; further providing for certain ordinances; adding provisions relating to projects of regional impact; providing for traditional neighborhood development; further providing for grant of power, for contents of subdivision and land development ordinance, for approval of plats and for recording of plats and deeds; and providing for municipal authorities and water companies and for transferable development rights," and such ordinance provisions shall continue in full force and effect until February 21, 2001; provided, however, any such ordinance shall be subject to such amendatory provisions on and after February 22, 2001.

Article X - Appeals

(Art. repealed Dec. 21, 1988, P.L.1329, No.170)

Article X-A - Appeals to Court

Section 1001-A. Land Use Appeals. The procedures set forth in this article shall constitute the exclusive mode for securing review of any decision rendered pursuant to Article IX or deemed to have been made under this act.

Section 1001. Zoning Appeals. (1001 repealed Dec. 21, 1988, P.L.1329, No.170)

Section 1002-A. Jurisdiction and Venue on Appeal; Time for Appeal. All appeals from all land use decisions rendered pursuant to Article IX shall be taken to the court of common pleas of the judicial district wherein the land is located and shall be filed within 30 days after entry of the decision as provided in 42 Pa.C.S. 5572 (relating to time of entry of order) or, in the case of a deemed decision, within 30 days after the date upon which notice of said deemed decision is given as set forth in section 908(9) of this act.

Section 1003-A. Appeals to Court; Commencement; Stay of Proceedings.

(a) Land use appeals shall be entered as of course by the prothonotary or clerk upon the filing of a land use appeal notice which concisely sets forth the grounds on which the appellant relies. The appeal notice need not be verified. The land use appeal notice shall be accompanied by a true copy thereof.

(b) Upon filing of a land use appeal, the prothonotary or clerk shall forthwith, as of course, send to the governing body, board or agency whose decision or action has been appealed, by registered or certified mail, the copy of the land use appeal notice, together with a writ of certiorari commanding said governing body, board or agency, within 20 days after receipt thereof, to certify to the court its entire record in the matter in which the land use appeal has been taken, or a true and complete copy thereof, including any transcript of testimony in existence and available to the governing body, board or agency at the time it received the writ of certiorari.

(c) If the appellant is a person other than the landowner of the land directly involved in the decision or action appealed from, the appellant, within seven days after the land use appeal is filed, shall serve a true copy of the land use appeal notice by mailing said notice to the landowner or his attorney at his last known address. For

VITA

Jaclyn Marisa Dispensa was born May 1, 1977 in Philadelphia, Pennsylvania. Ms. Dispensa completed her Ph.D. requirement in Environmental Science from Drexel University in 2004 with a focus on environmental policy, specifically sprawling development and zoning variances. Ms. Dispensa received a Masters of Science Degree in Environmental Science with honors from Drexel University in 2000, and attended Drexel for her Bachelors of Science Degree as well. Ms. Dispensa also attended University of Pennsylvania for a Certificate in Non-Profit Executive Administration.

Ms. Dispensa has presented at several national and international conferences and participates on the Student Environmental Action Coalition's Speaker Bureau. She has published in *International Journal of Sociology and Social Problems*, special issue on global warming, "Media's Social Construction of Environmental Issues: Focus on Global Warming." She received honors and awards including Honorable Mention for Drexel's University's Research Day, AJ Drexel Scholarship, All-American Scholar, and Robert C. Byrd Scholarship.

Professionally, Ms. Dispensa has worked in several sectors of the environmental field including the Philadelphia Water Department, Raytheon Engineers and Constructors, Naval Base of Philadelphia Science and Engineering Department, Drexel University, Keystone Foods, and Edifice Rx. Currently, she holds a position as Director of Conservation Policy for Pinelands Preservation Alliance in Southampton, New Jersey. Ms. Dispensa was also selected for the first Philadelphia Regional 2004 class of the Environmental Leadership Program.